

Kramer Desk



1974
1975

Cat.

1974/75

UNDERGRADUATE CATALOG
FITCHBURG STATE COLLEGE
FITCHBURG, MASSACHUSETTS

THE COMMONWEALTH OF MASSACHUSETTS

The Board of Trustees of State Colleges

53 State Street

Boston, Massachusetts 02109

Board of Trustees

Mrs. Sylvia K. Burack (Chairman)

Mr. Walter H. Flinn (Vice Chairman)

Mr. William E. Aubuchon, Jr.

Mrs. Ruth L. Briggs

Mr. John M. Cataldo

Mr. Peter S. diCicco

Mr. Carlton W. Edmonds, Jr.

Mr. Brian K. Fitzgerald

Mr. Arthur J. Gartland

Mrs. Elaine S. Marks

Mrs. Helen C. Vanderbilt

Mr. Patrick E. McCarthy,
Chancellor (Ex-officio)

Dr. Lawrence E. Dennis,
Provost and Director; Executive Secretary
Board of Trustees

"FITCHBURG STATE
COLLEGIANA/ARCHIVES
COLLECTION"

NON-CIRCULATING

REGIONAL ACCREDITATION

The New England Association of Schools and Colleges, Inc., is one of six nationally recognized regional accrediting associations in the United States and is the official accrediting agency for schools and colleges in the six New England states. Institutional membership in the Association indicates that the school or college has been carefully evaluated and found to meet standards agreed upon by qualified educators.

In an era of immense change affecting all levels of education, Fitchburg State College recognizes the need for standards that transcend the widely varying conditions in local institutions, communities, and states. Because Fitchburg State College continues to be vitally interested in the quality of the educational preparation of its applicants for admission, it supports the efforts and the commitment of secondary school officials and governing bodies to have secondary schools meet regional accreditation standards.

Accredited By

New England Association of Schools and Colleges
National Council for Accreditation of Teacher Education
National League for Nursing

Member

The Eastern States Association of Professional Schools for Teachers * The American Association of Colleges for Teacher Education * College Entrance Examination Board * New England Teacher Preparation Association * National Commission on Accrediting * New England Association of Schools and Colleges * National League for Nursing

STATE COLLEGE LIBRARY
FITCHBURG, MASS.



FITCHBURG
STATE COLLEGE
UNDERGRADUATE
CATALOG
FITCHBURG, MASSACHUSETTS, 01420

CALENDAR 1974-75

September 3	College Opens
September 4	1st Station of Student Teaching Begins
September 4	Classes Begin
October 14	Columbus Day (no classes)
October 16	Monday Schedule
October 28	Veterans' Day (no classes)
November 1	1st Station of Student Teaching Ends
November 4	2nd Station of Student Teaching Begins
November 27	Classes end at 3 p.m. Last day for withdrawal from class without penalty
November 28-29	Thanksgiving Recess
December 13	Classes end
December 14-23	Final Examinations
January 10	2nd Station of Student Teaching Ends
January 20	College Opens
January 20	1st Station of Student Teaching Begins
January 21	Classes Begin
February 17	Washington's Birthday (no classes)
February 19	Monday Schedule
March 28	Good Friday (no classes)
March 28	1st Station of Student Teaching Ends
March 31 - April 4	Spring Vacation
March 31	2nd Station of Student Teaching Begins
April 18	Last day for withdrawal from class without penalty
April 21	Patriots' Day (no classes)
May 14	Classes End - 5 p.m.
May 15 - 24	Final Examinations
June 6	2nd Station of Student Teaching End
June 8	Commencement

Exam. schedules in each semester include two Saturdays.

CALENDAR 1975-76

September 2	College Opens
September 3	Classes Begin
October 13	Columbus Day (no classes)
October 15	Monday Class Schedule
Veterans' Day	(no classes)
November 26	Classes End - 3 p.m.
November 27	Thanksgiving Recess
December 12	Classes End
December 13-23	Final Examinations
January 19	College Opens
January 20	Classes Begin
February 16	Washington's Birthday (no classes)
February 18	Monday Class Schedule
March 22-26	Spring Vacation
April 16	Good Friday
April 19	Patriots' Day (no classes)
May 12	Classes End
May 13-22	Final Examinations
June 5	Commencement

Exam. schedules in each semester include two Saturdays

TABLE OF CONTENTS**GENERAL INFORMATION**

Administration	5
Faculty	7
The College	16
Goals and Objectives	17
Admission of Students	19
Advanced Standing	22
College Housing	23
Student Costs	23
Veteran Education	25
Financial Assistance	26
Requirements for Graduation	27
Student Teaching	28
Withdrawal from Class	29
Withdrawal from the College	29
Parking Regulations	30

DEGREE PROGRAMS

General Education	30
Behavioral Science Sequence	31
Foreign Language Requirements for B.A.	31
Professional Sequence for All Secondary Majors	32
Specialization for Elementary Majors	32
Graduate Study	33
Undergraduate Evening Session	34
Specific Degree Requirements for Majors	35
B.A., B.S. in Biology	35, 36
B.S. in Education, Biology	35
B.S. in Education, Chemistry	36
B.A. in Chemistry	37
B.S. in Computer Science	37
B.S. in Education, Early Childhood	38
B.S. in Education, Elementary	38
B.S. in Education, English	39
B.A. in English	39
B.A., B.S. in Education, Geography	40
B.S. in Education, History	41
B.A. in History	41
B.S. in Human Services	42
B.S. in Education, Industrial Arts	43
B.A., B.S. in Mathematics	43, 44
B.S. in Education in Mathematics	44
B.S. in Medical Technology	45
B.S. in Nursing	45

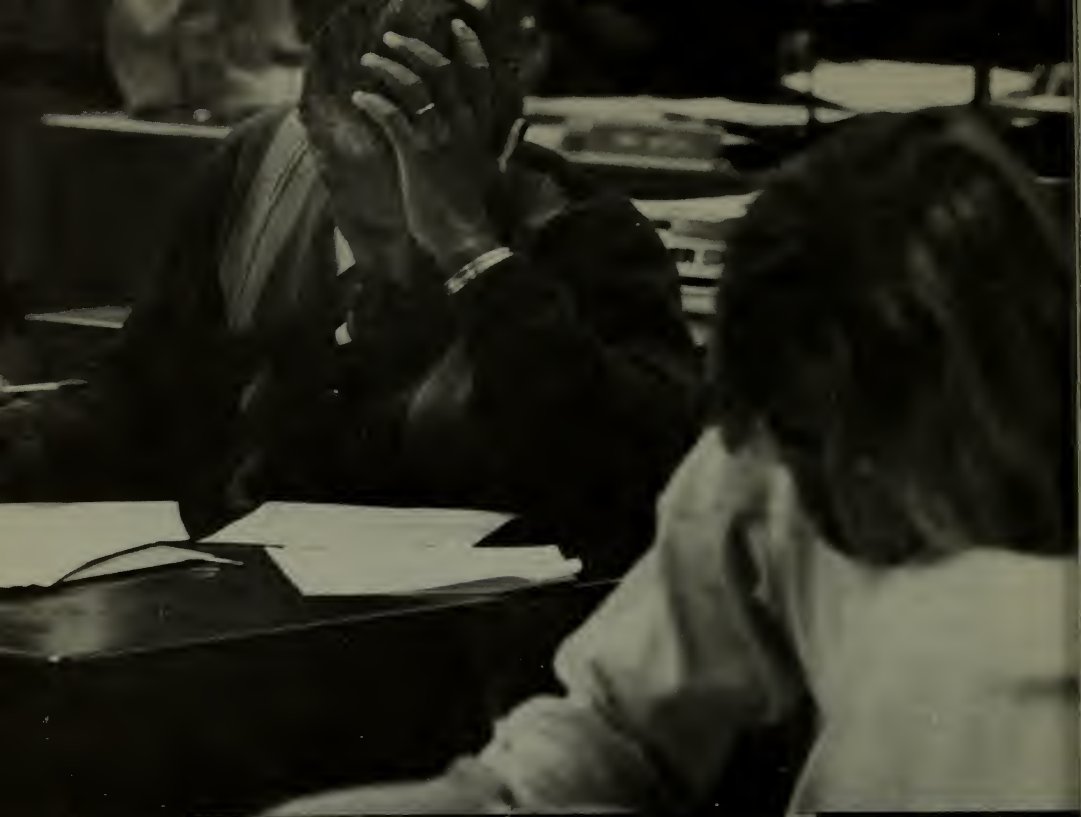
B.A. in Physics	47
B.S. in Education, Physics	48
B.A., B.S. in Psychology	49
B.S. in Education, Special Education	49
B.A., B.S. in Sociology	50
Explanation of Course Numbers	51

DESCRIPTION OF COURSES AND REQUIREMENTS

Art	51
Behavioral Science	52
Psychology	52
Human Services	55
Sociology	55
Biology	56
Chemistry	58
Computer Science	60
Early Childhood	61
Elementary and Secondary Education	63
English	65
Foreign Languages	68
French	68
German	69
Russian	70
Spanish	70
Geography	71
History	73
Industrial Arts	76
Instructional Media	79
Mathematics	80
Medical Technology	81
Music	82
Nursing	83
Philosophy	84
Physical Education	87
Physics	88
Political Science	90
Science	91
Special Education	91
Speech	94

ADMINISTRATION

James J. Hammond, Ed.M.	<i>President</i>
Lawrence A. Quigley, Ph.D.	<i>Executive Vice President</i>
George H. Merriam, Ph.D.	<i>Academic Dean</i>
Joseph A. Angelini, C.A.G.S.	<i>Director of Admissions</i>
Duane Armstrong, M. in Adm.	<i>Financial Aid Officer</i>
George J. Aziz, M.Ed.	<i>Registrar</i>
Thomas Battinelli, C.A.G.S.	<i>Chairman, Physical Education Department</i>
John J. Boursy, M.B.A.	<i>Director of Fiscal Affairs</i>
Raymond Bryant, M.ED.	<i>Director of Placement; Acting Director, Counseling</i>
William Casey, B.S., M.A., M.S.	<i>Librarian</i>
Robert W. Clark, M.A.	<i>Chairman, Mathematics Department</i>
Harry Crowley, Ed.D.	<i>Chairman, Behavioral Sciences Department</i>
Stanley Dick, Ph.D.	<i>Chairman, Biology Department</i>
Edward T. Donnelly, Ed.D.	<i>Chairman, Industrial Arts Department</i>
Adele M. Driscoll, Ed.D.	<i>Chairman, Early Childhood Elementary and Secondary Education Department</i>
Joseph F. Durant, Ed.D.	<i>Dean of Students</i>
William H. Fitzgibbon, M.S.	<i>Associate Dean of Students</i>
William J. Goldman, Ed.D.	<i>Chairman, Special Education Department</i>
Terry H. Grabar, Ph.D.	<i>Chairman, English Department</i>
Robert W. Greene, Ph.D.	<i>Associate Registrar</i>
Francis X. Guindon, Ed.D.	<i>Director of Planning and Development</i>
Louise Keenan, Ed.D.	<i>Associate Dean of Students</i>
Theodore L. Lapierre, M.Ed.	<i>Chairman, Physics Department</i>
Robert Lee, Ed.D.	<i>Director and Principal of McKay Campus School</i>
Philip A. McMurray, M.Ed.	<i>Director of Evening Session</i>
John A. McNaney, Ph.D.	<i>Chairman, Chemistry Department</i>
John F. Nash, Ed.D.	<i>Director of Continuing Education</i>
Donald H. Norton, Ph.D.	<i>Chairman, Social Sciences Department</i>
Lawrence Ovan, Ed.D.	<i>Director of Field Services</i>
Francis J. Pilecki, Ed.D.	<i>Dean of Teacher Education</i>
Pierre L. Pinet, M.A.	<i>Chairman, Modern Languages</i>
Michael Rivard, B.S.	<i>Bursar</i>
David F. Ryder, Ed.D.	<i>Director of Instructional Media</i>
John Strohbeen, B.S.	<i>Superintendent of Buildings and Grounds</i>
Eleanor Voorhies, M.N.M.A.	<i>Chairman, Nursing Department</i>



Faculty

- Lynn T. Ackler A.B. Ohio State University; A.M. Washington State University; Ph.D. Lehigh University. *Associate Professor, Mathematics*. 1971.
- Bonita C. Adams B.A. Salem State College; M.A. Northeastern University. *Instructor, McKay Campus School*. 1974.
- Rose Ann Addorisio B.S.Ed., M.Ed. Fitchburg State College. *Instructor, McKay Campus School*. 1969.
- Thomas L. Altshuler B.S. University of California; M.S. Columbia University; Ph.D. Oxford University. *Assistant Professor, Industrial Arts*. 1972
- Neal W. Anderson A.B., M.S. University of Utah; Ph.D. Cornell. *Assistant Professor, Biology*. 1970
- John T. Andrews B.S., M.S.Ed. Fitchburg State College. *Assistant Professor, Industrial Arts*. 1970
- Joseph A. Angelini A.B. Providence College; Ed.M. Boston College; C.A.G.S. Boston University. *Director of Admissions and Assistant Professor, Mathematics*. 1958
- Henry Ares B.A. University of Moncton (Canada); M.Ed. Fitchburg State College. *Instructor, McKay Campus School*. 1970
- Lawrence J. Arnold B.A. King's College; M.A. Fordham University; Ph.D. Trinity College, Dublin. *Assistant Professor, History*. 1968
- Elmer J. Arsenault B.E. Tufts University; M.F.A. Syracuse University. *Assistant Professor, Art*. 1958
- Muriel P. Atchue A.B. Our Lady of the Elms. *Adjunct Clinical Professor in Medical Technology*. 1973
- Lillian Bannon B.S. Nursing Ed. Boston College School of Nursing; M.Ed. Boston College. Sabbatical leave 1st semester 1974-75. *Associate Professor, Nursing*. 1962
- Patricia Barbaresi B.S.Ed. Fitchburg State Teachers College; M.A. University of Connecticut; Ed.D. Cornell University. *Professor, Elementary Education*. 1965
- James P. Barbato A.B. Assumption College; M.A. Clark University. *Assistant Professor, Geography*. 1972
- William Barker A.B. Boston University; M.A. Brandeis University; Ph.D. Brandeis University. *Assistant Professor, English*. 1971
- Thomas Battinelli A.A., B.S. Boston University; M.Ed. Boston College; Ed.D. Boston University. *Professor and Chairman, Physical Education*. 1960
- Alan L. Bernstein B.A. Hofstra University; M.A. University of New Hampshire; Ph.D. Tufts University. *Associate Professor, Psychology*. 1969
- Howard J. Besnia A.B. Clark University; B.F.A., M.F.A. Yale University. *Associate Professor, Industrial Arts*. 1960
- Hasan Bey B.S. State Teachers College, Elbasan, Albania; M.S. State Scientific College, Shkoder, Albania; Ph.D. State University, City of Parma, Italy. *Associate Professor, Chemistry*. 1965
- George W. Bond A.B. Dartmouth College; M.S., Ph.D. University of Rhode Island. *Instructor, Biology*. 1973
- Carla Borg B.A. West Virginia Wesleyan College; M.Ed. Boston State College. *Assistant Professor, Special Education*. 1969
- Colin E. Bourn A.B. St. Michael's College; M.Ed. Fitchburg State College; M.A. University of Massachusetts. *Assistant Professor, English*. 1965
- William A. Bowers B.S.Ed. Eastern Michigan University; M.S. Michigan State University. *Associate Professor, Physics*. 1964
- George J. Breen A.B., M.Ed., Ed. D. Clark University. *Assistant Professor, Psychology*. 1972
- Betsy J. Brennenman B.S. Kent State University; M.L.S. Syracuse University. *Reference Librarian*. 1971
- William G. Brown B.S.G.E. University of Omaha; Ed.M., Ed.D. Boston University. *Assistant Professor, Special Education*. 1972

- Grainger Browning A.B. Shaw University; M.A., Ph.D. Boston University. *Professor, Sociology*. 1966
- Raymond E. Bryant B.S.Ed. Fitchburg State College; M.Ed., California State College. *Director of Placement; Acting Director, Counselling Center*. 1971
- Judith K. Budz B.A. University of Michigan; M.A. Tufts University; Ph.D. Northwestern University. *Assistant Professor, English*. 1974
- John M. Burke A.B. Boston College; A.M. Fordham University; Ph.D. Brown University. *Associate Professor, Russian and German*. 1969
- Ruth R. Butler B.A. Saint Joseph College; M.A. Trinity College; Ph.D. Yale University. *Professor, Mathematics*. 1970
- Katie G. Carlson B.A. Hollis College; M.Ed. University of Massachusetts. *Instructor McKay Campus School*. 1973
- Helen Carney B.S.Ed., M.Ed. Fitchburg State Teachers College. *Instructor, McKay Campus School*. 1955
- Joseph E. Carpenter B.S.Ed. Fitchburg State Teachers College; Ed.M. Worcester State Teachers College; C.A.G.S. University of Connecticut. *Associate Professor, Industrial Arts*. 1957
- Norman Carson B.S., M.S. State University College of New York at Brockport. *Assistant Professor, History*. 1964
- Eugene Cassassa B.S.Ed. Fitchburg State College; M.A. Columbia University. *Assistant Professor, Speech*. 1958
- George M. Case B.A. College of Wooster; M.A. University of Massachusetts. *Assistant Professor, English*. 1964
- William Casey B.S., M.A. Boston College; M.S. Simmons College. *Librarian*. 1967
- Robert F. Champlin B.S. Bridgewater State College; Ed.M. Boston University; Ph.D. Ohio State University. *Assistant Professor, Geography*. 1972
- Eleanor D. Clang B.S. Salve Regina College; M.S. University of Pennsylvania. *Instructor, Nursing*. 1973
- John P. Clark B.A. American International College; M.A. Clark University. *Assistant Professor, History*. 1962
- Robert W. Clark A.B. Brown University; M.Ed. State College at Bridgewater; M.A. Rutgers University. *Assistant Professor and Chairman, Mathematics*. 1967
- George F. Condiak A.B. DePauw University; Ph.D. Cornell University. *Professor, Chemistry*. 1947
- Richard F. Condon B.S.Ed., Ed.M. Fitchburg State Teachers College. *Instructor and Assistant Principal, McKay Campus School*. 1959
- Nicholas J. Copoulos B.S., M.Ed. Boston University. *Assistant Professor, Mathematics*. 1957
- Catherine Cox B.Ed. University of Minnesota; A.M. Clark University. *Associate Professor, Geography*. 1964
- Harry Crowley B.S. Bates College; Ed.M., Ed.D. Boston University. *Professor and Chairman, Behavioral Sciences*. 1956
- Lee N. Cunningham B.S. Springfield College; M.Ed. University of Massachusetts. *Sabbatical leave 1974-75. Assistant Professor, Physical Education*. 1967
- Marion Cushman B.S.Ed. Boston University; M.Ed. Harvard University; C.G.S. Columbia University Teachers College. *Assistant Professor, McKay Campus School*. 1950
- Elizabeth A. Czapan B.S., M.Ed. University of Massachusetts. *Instructor, McKay Campus School*. 1972
- Frederic Davis B.S.E.E. University of Connecticut; MS., Ph.D. University of Massachusetts. *Associate Professor, Biology*. 1967
- Richard A. DeCesare B.S. Holy Cross College; M.A., Ph.D. Boston College. *Associate Professor, Philosophy*. 1962
- Harold F. Desmond B.S., M.Ed. Fitchburg State College; C.P.G.S.P. Boston College. *Assistant Professor, McKay Campus School*. 1967
- Charles DeWan B.S. Lehigh University; M.D. Jefferson Medical College. *Adjunct Clinical Professor in Medical Technology*. 1973
- Stanley Dick A.B. Brooklyn College; M.A., Ph.D. Harvard University. *Associate Professor and Chairman, Biology*. 1971
- Edward T. Donnelly B.S.Ed., Ed.M. Fitchburg State Teachers College; Ed.D. Boston University. *Professor and Chairman, Industrial Arts*. 1951

- Joyce M. Downey B.S. Bridgewater State College; Ed.M. Boston University. *Assistant Professor, Physical Education.* 1971
- Virginia Doyle B.S.N. Boston College School of Nursing; M.S. Catholic University of America. *Instructor, Nursing.* 1967
- Adele M. Driscoll B.S.Ed., Ed.M. Fitchburg State Teachers College; Ed.D. Boston University. *Professor and Chairman, Early Childhood, Elementary and Secondary Education Department.* 1942
- Edward F. Driscoll B.S.Ed., Ed.M. Fitchburg State Teachers College; Ph.D. University of Connecticut. *Professor, Industrial Arts.* 1956
- Rita Driscoll B.S. Clark University; M.S., C.A.G.S. Boston University. *Associate Professor, Nursing.* 1964
- John P. Dufault A.B. Assumption College; M.S. University of Massachusetts; Ph.D. Boston College. *Assistant Professor, Psychology.* 1972
- Joseph F. Durant A.B., M.A., Ed.D. Boston College. *Dean of Students, Professor, Psychology.* 1962
- Harold J. Enzian B.S. Oswego State College; M.A. Kent State University; Ph.D. Ohio State University. *Associate Professor, Industrial Arts.* 1967
- Ernest E. Fandreyer MA/MSC University of Bonn. *Assistant Professor, Mathematics.* 1968
- Joseph Farias B.S.Ed., Ed.M. Fitchburg State Teachers College. *Assistant Professor, Industrial Arts.* 1961
- Marie Farrell B.S. University of Bridgeport; M.A. University of Connecticut; M.S., D.Ed. Boston College. *Associate Professor, Nursing.* 1973
- Anthony V. Feroci B.A. Suffolk University; M.A. Middlebury College. *Assistant Professor, Spanish.* 1968
- Joseph L. Finkel A.B. University of Massachusetts; A.M. University of Chicago. *Assistant Professor, English.* 1969
- William Fitzgibbon B.S.Ed., Ed.M. Fitchburg State Teachers College; M.N.S. Worcester Polytechnic Institute. *Associate Dean of Students and Associate Professor, Science* 1953
- Katherine E. Flynn B.S.Ed., M.Ed. Fitchburg State Teachers College; C.A.G.S. University of Connecticut. *Assistant Professor, Special Education.* 1959
- Rina Folman B.A. City College of New York; M.A., Ph.D. Boston University. *Instructor, Psychology.* 1973
- Helen Foot A.B. Smith College; Ed.M. Fitchburg State College. *Instructor, McKay Campus School.* 1966
- Mary C. Foster B.A., Wheaton College; M.A. Clark University; Ph.D. University of Michigan. *Assistant Professor, History.* 1971
- Louis Frank A.B. Clark University; M.A. Boston College; Ph.D. Boston University. *Assistant Professor, Special Education.* 1971
- Norman H. Fredette B.S. University of Massachusetts; M.Ed. Harvard University. *Assistant Professor, Physics.* 1967
- Donald Freeburg B.S. Pennsylvania State University; M.A. Bowdoin College. *Assistant Professor, Mathematics.* 1965
- Donna Friedman B.F.A. Hunter College; M.F.A. University of Pennsylvania. *Instructor, Art* 1973
- Robert Fritz B.F.A. Syracuse University; M.A., Ed.D. Columbia University. *Associate Professor, Art.* 1961
- Robert J. Gardula B.A. Bridgewater State College; M.A. Clark University. *Instructor, Geography.* 1973
- Everett A. Garvin A.B. Antioch College; M.S. Tulane University; Ph.D. Washington University. *Professor, Psychology.* 1967
- John Gaumond B.S., M.Ed. Worcester State College; M.A. Syracuse University. *Assistant Professor, McKay Campus School.* 1969
- Lillian Gerecke B.S. Simmons College; Ed.M. Fitchburg State College. *Librarian, McKay Campus School.* 1970
- Carol S. Gevirtz B.S. (Nursing) University of Connecticut; M.A. Boston University. *Instructor, Nursing.* 1974
- Rose I. Giammalvo B.S. in Ed. Fitchburg State College; M.S.N. Boston College. *Instructor, Nursing.* 1974
- Rosemary Giovino B.S. in Ed. Lowell State College; Ed.M., Ed.D. Boston University. *Professor, Special Education.* 1972

- Paul A. Girling A.B. Ottawa University; B.D., S.T.M. Andover Newton Theological School; M.A., Ed.D. Colorado State College. *Assistant Professor, Psychology*. 1968
- Richard A. Glidewell B.A., M.A. Northern Illinois University; Ph.D. Southern Illinois University. *Instructor, Philosophy*. 1973
- Alan Goldman A.B. Brown University; M.A. University of Pennsylvania; Ph.D. Brown University. *Assistant Professor, Government*. 1971
- William J. Goldman B.S.Ed. Salem State Teachers College; Ed.M., Ed.D. Boston University. *Professor and Chairman, Special Education*. 1955
- Esther C. Gove B.A.L.A., M.A. University of New Hampshire; M.S.L.S. Simmons College. *Catalog Librarian*. 1964
- Terry H. Grabar B.A. Wellesley College; M.A., Ph.D. University of Michigan. *Chairman and Professor, English*. 1970
- Anne E. Green B.A. Emmanuel College; M.Ed. Fitchburg State College. *Assistant Professor, Education*. 1964
- Phyllis H. Green B.S.N. St. Louis University; M.A. Clark University, Ed.D. Boston College. *Associate Professor, Nursing*. 1970
- Robert W. Greene B.S.Ed. Worcester State Teacher College; M.Ed. Northeastern University; Ph.D. University of Connecticut. *Assistant Professor, Associate Registrar*. 1960
- Joseph Griffin B.S., Ph.D. Pennsylvania State University. *Instructor, Mathematics*. 1973
- Francis X. Guindon A.B. University of Notre Dame; M.Ed. Bridgewater State College; Ed.D. Harvard University. *Director of Planning and Development and Professor, Education*. 1970
- Charles M. Habib B.S. Tufts University; Ph.D. University of Massachusetts. *Instructor, Biology*. 1973
- Mary Haley B.S.N., M.S. Boston College. *Instructor, Nursing*. 1967
- Jeanne K. Hambright B.S. Millersville State College; Certificate Marburg University, Germany; M.A., Ph.D. Tufts University. *Assistant Professor, French and German*. 1970
- James J. Hammond B.S. Fitchburg State Teachers College; M.Ed. Harvard University. *President and Commonwealth Professor*. 1937
- Mary L. Hanley B.A. College of St. Catherine; M.Ed. California State College; Ed.D. Boston University. *Assistant Professor, Psychology*. 1974
- Erling Hanson B.S.Ed., Ed.M. Fitchburg State Teachers College. *Assistant Professor, Industrial Arts*. 1960
- Sophia B. Harrell B.S.N. Winston-Salem State College; M.S. Boston University on leave 1974-75. *Instructor, Nursing*. 1970
- Walter F. Harrod B.S.Ed., Ed.M. Fitchburg State Teachers College; C.A.G.S. University of Connecticut. *Associate Professor, Industrial Arts*. 1947
- Elizabeth M. Haskins B.S., M.S. Massachusetts Institute of Technology; M.A. Radcliffe College. *Associate Professor, Mathematics*. 1947
- Douglas C. Hebb A.B. Union College; A.M. University of California (Berkeley). *Assistant Professor, History*. 1965
- Leo J. Hines A.B., M.A. Boston College; Ph.D. University of Wisconsin. *Associate Professor, English*. 1969
- Constance A. Hoyt B.S. Fitchburg State College; M.S.N. University of California. *Instructor, Nursing*. 1972
- Donald Isaac B.A. City College of New York; M.A., Ph.D. Clark University. *Associate Professor, Psychology*. 1971
- Everett N. Israel B.S. State University of New York College at Oswego; M.A. University of Maryland; Ed. D. West Virginia University. *Associate Professor, Industrial Arts*. 1964
- Essie May Jackson. B.S.Ed. Alcorn College; M.Ed. State College at Fitchburg. *Instructor, McKay Campus School*. 1966
- George B. James B.S.Ed., Ed.M. Fitchburg State Teachers College; Ed.D. University of Massachusetts. *Associate Professor, Industrial Arts*. 1970
- Leota Janke A.B. Drury College; A.M. Washington University; Ph.D. University of Chicago. *Associate Professor, Psychology*. 1972
- Walter G. Jeffko B.S. University of Bridgeport; M.A., Ph.D. Fordham University. *Associate Professor, Philosophy*. 1970
- James R. Jellison B.S., M.S. Northeastern University. *Instructor, McKay Campus School*. 1972
- Louise Keenan A.B. Emmanuel College; M.Ed. Harvard University; Ed.D. Boston University. *Professor, Psychology, Associate Dean of Students*. 1968
- John N. Kelly B.A. University of Michigan; M.A. Columbia University. *Instructor, Instructional Media*. 1973

- Richard Kent B.M.E. Drake University; M.M. New England Conservatory of Music; Mus. A.D. Boston University. *Professor, Music*. 1947
- William R. Keough A.B. Harvard University; M.A., M.F.A. Iowa University. *Assistant Professor, English*. 1969
- Jane Kerr B.S.Ed. Fitchburg State Teachers College; M.S. Boston University. *Instructor, Nursing*. 1970
- Sister Mary Aloysia Klinker B.S.St. Joseph College. *Adjunct Clinical Professor in Medical Technology*. 1973
- Robert Kokernak Ph.D. B.S. Worcester Polytechnic Institute; M.S. Stanford University; Ph.D Worcester Polytechnic Institute. *Assistant Professor, Industrial Arts*. 1974
- Liana G. Kolb A.B. Douglass College; B.S. Fitchburg State; M.S. Boston University. *Instructor McKay Campus School*. 1971
- Jean Kressey B.S. Columbia University; M.S. University of Massachusetts. *Instructor, Nursing*. 1973
- Elizabeth A. Kruczek B.S. in Ed. Boston University; M.Ed. Worcester State College. *Assistant Professor, Physical Education*. 1966
- Richard Kruse B.A., M.Ed. Boston University. *Assistant Professor, Speech*. 1967
- Theodore L. Lapierre B.S.Ed. Plymouth Teachers College; M.Ed. University of New Hampshire. *Associate Professor and Chairman, Physics*. 1961
- Carleton H. LaPorte, Jr. A.B., M.A. Assumption College; LL.B., J.D. Boston University. *Assistant Professor, History and Political Science*. 1969
- Robert R. Lee B.S. University of San Francisco; M.A. San Francisco State College; Ed.D. Harvard University. *Professor, Education and Principal, McKay Campus School*. 1970
- A. Orin Leonard B.A. Wesleyan University; B.S. School of Library Science, Columbia University; M.A., Ed.D. Teachers College, Columbia University. *Associate Professor, Sociology*. 1952
- Barry Light B.A. Lebanon Valley College; M.A. Louisiana State University; Ph.D. Pennsylvania State University. *Instructor, Mathematics*. 1973
- Karl R. Lindquist B.A., M.Ed. University of Maine; M.S. Worcester Polytechnic Institute. *Assistant Professor, Physical Science*. 1963
- Norman C. Locke B.A., M.Ed. Boston University. *Assistant Director of Instructional Media*. 1971
- Louis O. Lorenzen B.S. Ed, Bowling Green State University; M.Ed. Bridgewater State College; M.A.T.F.A. Assumption College. *Assistant Professor, McKay Campus School*. 1965
- Bernice C. Lothrop B.S. Simmons College; A.M. Columbia University Teachers College. *Instructor, Home Economics*. 1965
- Doris V. Lystila B.S. in Ed., M.Ed. Fitchburg State College. *Instructor, McKay Campus School*. 1965
- William MacGillivray M.D. Georgetown University. *Adjunct Clinical Professor in Medical Technology*. 1973
- Elizabeth MacLean B.S.Marietta College. *Adjunct Clinical Professor in Medical Technology*. 1973
- Patricia Macrides B.A. Simmons College; M.A. Northeastern University. *Instructor, Sociology*. 1973
- John C. Magnasco B.S., Ed. M. Boston University. *Assistant Professor, Instructional Media*. 1970
- Richard Maki B.S. Fitchburg State College; M.Ed. University of Florida. *Assistant Professor, McKay Campus School*. 1969
- David C. Maloney B.S.Ed. Worcester State College; M.A. Assumption College. *Assistant Professor, Psychology*. 1970
- Elizabeth Maney B.S.Ed. Boston University; M.Ed. Fitchburg State College. *Assistant Professor, McKay Campus School*. 1958
- Robert McAuley A.B., M.D. Boston University. *Adjunct Clinical Professor in Medical Technology*. 1973
- Jean Mansfield B.S., M.S., C.A.G.S. Boston University. *Assistant Professor, Nursing*. 1973
- Mildred I. Marion B.S.Ed. Fitchburg State College; M.A. Assumption College. *Instructor, Nursing*. 1972
- Frances Marshall B.S. Simmons College. *Instructor, McKay Campus School*. 1964
- Edward J. Martens B.S., M.S., Ph.D. Massachusetts Institute of Technology. *Assistant Professor, Industrial Arts*. 1971

12 FITCHBURG STATE COLLEGE

- Anne May B.S. Ed. Fitchburg State College; Ed.M., Ed.D. Boston College. *Professor, Special Education*. 1956
- Barbara A. May B.S. (Nursing) Boston College; M.Ed. Fitchburg State College; M.S. Boston University. *Instructor, Nursing*. 1974
- Elizabeth May B.S.Ed. Fitchburg State Teachers College; M.S.N. Boston College. *Associate Professor, Nursing* 1970
- John J. Mazeika B.S. Holy Cross College; M.Ed. Boston College. *Director of Pupil Personnel Services, McKay Campus School*. 1966
- Marie McAllister A.B. Good Counsel College; M.A. Brown University, on leave 1974-75. *Instructor, English*. 1969
- Muriel McAvoy B.A. Radcliffe College; A.M., Ph.D. Boston University. *Associate Professor, History*. 1965
- Donna-Lee McCabe B.S. University of Rochester; M.Ed. Boston University. *Assistant Professor, Psychology*. 1970
- Marilyn McCaffrey B.Ed. Rhode Island College; M.A. Brown University; Ed.D. Boston University. *Assistant Professor, English*. 1971
- Robert McDermott B.S.Ed., M.Ed. Fitchburg State Teachers College. *Instructor, McKay Campus School*. 1960
- Margaret McDowell B.S.Ed., M.Ed. Fitchburg State Teachers College. *Instructor, McKay Campus School*. 1950
- John McGrail, Jr. A.B. Holy Cross College; A.M. Boston College. *Assistant Professor, English*. 1963
- Phillip A. McMurray A.B. Manhattan College; Ed.M. Fitchburg State Teachers College. *Associate Professor and Director, Evening Session*. 1947
- John A. McNaney B.S. Ed., Ed.M. State Teachers College at Fitchburg; Ph.D. University of the Pacific. *Professor and Chairman, Chemistry*. 1958
- Francis McSherry A.B. Clark University; M.A.T. Assumption College. *Assistant Professor, McKay Campus School*. 1968
- John P. Meaney B.S. University of Texas at El Paso; Ed.M. Boston University. *Assistant Professor, Instructional Media*. 1971
- Harold W. Melvin A.B. Harvard College; B.D. Episcopal Theological School; S.T.M. Harvard University; Th.D. Boston University. *Assistant Professor, Sociology*. 1970
- George H. Merriam A.B. Clark University; A.M. Brown University; Ph.D. Clark University. *Academic Dean and Professor, History*. 1965
- Pasquale Micciche B.S., A.B., M.Ed. Boston College; M.A. University of Minnesota. *Assistant Professor, History*. 1969
- Leo Millea B.S. in Ed. Fitchburg State College; Ed.M. Calvin Coolidge College. *Instructor, McKay Campus School*. 1973
- Frederick R. Miller B.S.Ed., Ed.M. Fitchburg State College; C.A.G.S. University of Connecticut. *Assistant Professor, Industrial Arts*. 1966
- George L. Miller B.A., M.A. Eastern Michigan University; Ph.D. University of Michigan. *Assistant Professor, Early Childhood Education*. 1972
- Sandra Miller-Jacobs B.A. Queens College; M.Ed. Boston University. *Instructor, Special Education*.
- M. Irene Miranda B.S.Ed. Bridgewater State College; M.A. University of Massachusetts. *Assistant Professor, English*. 1965
- L. Doris Moquin B.S.Ed. Salem State Teachers College; M.Ed., Ed.D. Boston University. *Associate Professor, Elementary Education*. 1966
- Caroline Murphy A.B. Regis College; A.M., Ph.D. Clark University. *Associate Professor, Economics*. 1971
- Thomas L. Murrin B.S.E. State University of New York, M.A. Michigan State University. *Resident Counselor*. 1971
- John F. Nash A.B., M.S. Boston College; Ed.M. Boston University; Ed.D. Syracuse University. *Professor, Director of Continuing Studies*. 1958
- Rose Marie Neunherz B.S. Beaver College; M.S. Southern Connecticut State College; M.S. Northeastern University. *Associate Professor, Biology*. 1967
- Barbara Nole B.S.Ed. Bridgewater State College; M.S.P.E. University of North Carolina. *Instructor, Physical Education*. 1970
- Donald H. Norton B.A., M.A. University of Connecticut; Ph.D. Clark University. *Professor and Chairman, Social Sciences*. 1969

- Janice A. Nyman B.A., M.A. University of Massachusetts. *Instructor, English*. 1974
- Katherine E. O'Connor B.S.Ed. Fitchburg State Teachers College; M.S. Boston College. C.A.G.S. Boston University. *Associate Professor, Nursing*. 1962
- M. Elizabeth O'Connor B.S.Ed., M.Ed. Fitchburg State Teachers College. *Assistant Professor, Assistant Principal, McKay Campus School*. 1948
- Arthur O'Dea M.D. University of Buffalo. *Adjunct Clinical Professor in Medical Technology*. 1973
- Helen O'Flaherty B.A. College of St. Teresa; M.A., Ph.D. Fordham University. *Associate Professor, Education*. 1971
- Alice T. O'Malley B.A. Anna Maria College; M.A., Ph.D. Clark University. *Associate Professor, Biology*. 1965
- Reginald F. O'Neill, S.J. B.A., M.A. Boston College; Ph.L., S.T.L. Weston College; Ph.D. Fordham University. *Professor, Philosophy*. 1970
- Lawrence A. O'vian A.B. Bates College; Ed.M. Pennsylvania State University; Ed.D. University of Massachusetts. *Director of Field Services and Professor, Education*. 1971
- Erwin Pally B.A., A.M. University of Massachusetts; A.M. Harvard University. *Assistant Professor, English*. 1966
- Charles J. Panageotes B.S. Fitchburg State Teachers College; M.Ed. Fitchburg State College. *Instructor, McKay Campus School*. 1971
- Irene Passios B.S.Ed., M.Ed. Fitchburg State Teachers College. *Assistant Professor, Education*. 1954
- Frank C. Patterson B.A. Trenton State College; M.M. Temple University. *Assistant Professor, Music*. 1968
- Albert F. Pierce B.S., M.Ed. Fitchburg State College, *Instructor, McKay Campus School*. 1971
- Robert C. Pierle A.B. Hampden Sydney College M.A. Duke University; Ph.D. Auburn University. *Assistant Professor, English*. 1974
- Ernest Pike B.S., M.Ed. Fitchburg State Teacher College. *Assistant Professor, McKay Campus School, Industrial Arts*. 1969
- Francis J. Pilecki B.A. St. John Fisher College; M.Ed., Ed.D. University of Rochester. *Dean of Teacher Education*. 1974
- Pierre L. Pinet B.A. University of New Hampshire; M.A. University of Pennsylvania; M.A. Rivier College. *Associate Professor, French; Chairman, Modern Languages*. 1961
- Anne Pollock B.A. University of Maine. *Adjunct Clinical Professor in Medical Technology*. 1973
- Harold O. Posselt B.A. University of Connecticut; M.Ed. Michigan State University. *Instructor, McKay Campus School*. 1973
- Francis P. Powers A.B. Maryknoll Seminary; M.Ed., Ed.D. Boston College. *Associate Professor, Secondary Education*. 1964
- Lawrence A. Quigley B.A. Iona College; M.A., Ph.D. Fordham University. *Executive Vice President and Professor, English*. 1968
- J. Walter Richard B.S.Ed. Fitchburg State Teachers College; M.S. University of Massachusetts. *Associate Professor, Secondary Education*. 1961 Leave of absence 1974-75
- Helene Riley B.S.P.A. Boston University; M.Ed. Fitchburg State College. *Instructor, McKay Campus School*. 1964
- Lawrence P. Risman B.S. Massachusetts Institute of Technology; M.A., Ph.D. Harvard University. *Assistant Professor, Mathematics*. 1968 on leave 1974-75
- Anne Rodgers B.A. Ohio Wesleyan University; M.A.T. University of Massachusetts. *Adjunct Clinical Professor in Medical Technology*. 1973
- Barbara Ann Roschi B.S. (Nursing) University of North Carolina; M.S. Boston College. *Instructor, Nursing*. 1974
- Elizabeth Ross A.B. Mt. St. Mary College; M.Ed., Ed.D. Boston University. *Associate Professor, Education*. 1969
- David J. Rousseau B.S., M.Mu.Ed. Lowell State College. *Instructor, McKay Campus School*. 1970
- Alice E. Ryan B.S. Boston College; M.S. Boston University. *Instructor, Nursing*. 1972
- David F. Ryder B.S.Ed. Fitchburg State Teachers College; M.A. University of Maryland; Ed.D. Boston University. *Professor and Director of Instructional Media*. 1963
- Ann Victoria Saalbach B.A. Duke University; M.Ed. University of Massachusetts. *Instructor, McKay Campus School*. 1973

- Jeremy W. Sayles B.A. Allegheny College; M.S.L.S. Simmons College. *Reference Librarian*. 1972
- Florence Scarpaci B.S., M.Ed. Worcester State College; M.F.A. Assumption College. *Assistant Professor, McKay Campus School*. 1966
- Jeannette Scharf M.A. Queens University. *Instructor, Spanish*. 1973
- Susan Schenkel B.A. University of Wisconsin; M.A., Ph.D. State University of New York at Buffalo. *Counselor*. 1972
- Judith Schifferle B.S. State University College at Buffalo; M.Ed. Fitchburg State College. *Instructor, McKay Campus School, English*. 1971
- Donald J. Schmidt B.A., M.A. State College of Iowa; Ph.D. University of Iowa. *Associate Professor, Biology*. 1967
- Myra Schwartz B.A. University of Denver; M.A.T. Oakland University. *Instructor, McKay Campus School*. 1973
- Harry Semerjian B.M. Boston University College of Music; M.A. Boston University. *Assistant Professor, Music*. 1960
- Johanna Seymour B.A. Ohio Wesleyan University. *Instructor, McKay Campus School*. 1971
- Christine Shaugnessy A.B. Mt. Holyoke; M.S. Ph.D. Georgetown University. *Assistant Professor, Mathematics*. 1971
- Robert Shaugnessy B.S.Ed., Ed.M. Fitchburg State Teachers College; M.N.S. Worcester Polytechnic Institute. *Assistant Professor, Computer Science*. 1966
- Louis P. Shepherd B.S.Ed. Kansas State Teachers College of Emporia; A.M. Columbia University. *Associate Professor, English*. 1952
- Michael A. Siegel B.A., M.A. William Patterson College; Ph.D. University of Utah. *Assistant Professor, Speech*. 1972
- Janet Simmons Diploma. Worcester Memorial Hospital; B.S., M.S. Boston University School of Nursing. *Assistant Professor, Nursing*. 1971
- Seda Sparling B.S., M.D. Boston University. *Adjunct Clinical Professor in Medical Technology*. 1973
- Richard Spencer B.A., M.A. Alfred University; Ph.D. State University of New York at Buffalo. *Assistant Professor, Psychology*. 1972
- George Steffanides B.S. University of Massachusetts; A.M., Ed.M. Harvard University. *Associate Professor, Biology*. 1960
- Charles Streff B.A., M.Ed. Mt. Carmel College; M.A., Ph.D. Boston College. *Instructor, Psychology*. 1973
- Robert S. Strong B.A. Central Washington State College; M.S. Oregon State University; Ph.D. University of the Pacific. *Assistant Professor, Chemistry*. 1973
- Kathleen Syna B.A. Bennington College; M.A., Ph.D. Columbia University. *Assistant Professor, McKay Campus School*. 1974
- Robert S. Tapply B.S.Ed., Ed.M. Fitchburg State Teachers College. *Assistant Professor, English*. 1966
- Mary Ann Tarasuk B.S.N. University of Bridgeport; M.S.N. Yale University. *Instructor, Nursing*. 1973
- Philip Tardanico B.S. in Ed. Fitchburg State College; M.Ed. Boston State College; Ed.D. Temple University. *Assistant Professor, McKay Campus School*. 1973
- Lillian Tater B.S.Ed. Fitchburg State Teachers College; Ed.M. Harvard University. *Associate Professor, English*. 1943
- Margaret Taylor B.S.N. New York University; M.S.N. Boston University; M.Ed. Fitchburg State College. *Assistant Professor, Nursing*. 1966
- Rowena Taylor B.S.Ed. Fitchburg State Teachers College; M.A. Assumption College; M.S. Boston College. *Assistant Professor, Nursing*. 1968
- Edmund B. Thomas B.S. John Carroll University; M.A. Kent State University; Ph.D. Clark University. *Assistant Professor, History*. 1967
- Rene J. Thomas B.S.Ed., Ed.M. Fitchburg State Teachers College; M.Ed. Northeastern University. *Associate Professor, Industrial Arts*. 1957
- Elbert L. Tompkins B.S. West Chester State College; M.A., Ed. D. Columbia University. *Associate Professor, Psychology*. 1971
- Dolores Torti B.S.N. Georgetown University; M.S. Boston University. *Instructor, Nursing*. 1973
- Esmail Valanejad B.S. University of Birmingham; Ph.D. Princeton University. *Assistant Professor, Physics*. 1968

- Michael Vignale A.B., Ph.D. Boston University. *Associate Professor, Chemistry*. 1966
 Mildred L. Vinsky B.S. Worcester State College; M.Ed., Ed.D. University of Massachusetts.
Assistant Professor, McKay Campus School. 1967
 Eleanor Voorhies B.A. Park College; M.N. Yale School of Nursing; M.A. Columbia University. *Professor and Chairman, Nursing*. 1972
 Clifford H. Wagner B.A. University of Cincinnati; M.A. University of Michigan; Ph.D. State University of New York at Albany. *Instructor, Mathematics*. 1973
 Elizabeth L. Warren B.A. Russell Sage College; M.S.S.S. Boston University. *Counselor, McKay Campus School*. 1973
 Robert Welch B.S., M.S. Emerson College. *Assistant Professor, Speech*. 1968
 Frank Wolf B.S., M.A., Ed.D. New York University. *Professor, Biology*. 1957
 Paul A. Yenofsky B.S., M.S. Emerson College. *Instructor, Speech*. 1973
 Allen W. Zalk A.B., Ed.M. Boston University; Ed.D. Yeshiva University. *Associate Professor, Special Education*. 1969
 Michele M. Zide B.A. Mount St. Mary College; MS. Boston College; Ed.D. University of Massachusetts. *Assistant Professor, Special Education*. 1973
 Robert Zottoli B.A. Bowdoin College; M.S., Ph.D. University of New Hampshire. *Associate Professor, Biology*. 1965

MEDICAL OFFICERS

- | | |
|----------------------------|-------------------------------------|
| Quintino Rollo, M.D. | <i>Director of Medical Services</i> |
| Svend W. Bruun, M.D. | <i>College Physician</i> |
| Joel Neuschatz, M.D. | <i>College Physician</i> |
| Anthony A. Ferrante, M.D. | <i>College Psychiatrist</i> |
| Doris M. Keefe, R.N., B.S. | <i>Nurse</i> |
| Mary H. Langille, R.N. | <i>Nurse</i> |

GENERAL PERSONNEL SUPERVISORS

- | | |
|--------------------|----------------------------------|
| Carl Beauchamp | <i>Computer Programmer</i> |
| J. Paul Dupont | <i>Chief Engineer</i> |
| Robert McCluskey | <i>Head Janitor</i> |
| Daniel F. O'Connor | <i>Head Groundsman</i> |
| Edward F. Leary | <i>Senior Accountant</i> |
| Claire G. Lavoie | <i>Head Administrative Clerk</i> |

FITCHBURG STATE COLLEGE

Fitchburg State College was established as a Normal School under Chapter 457, Acts of 1894 of the General Laws of the Commonwealth of Massachusetts. It became a State Teachers College in 1933 and a State College in 1962. The College is located on the north side of the City of Fitchburg, forty-five miles west of Boston, and is easily reached by car or bus from all parts of Massachusetts.

Some 3200 students are currently enrolled at the College in the undergraduate program with an additional 850 students pursuing graduate studies. Fitchburg State College is empowered to grant the following undergraduate degrees: Bachelor of Arts; Bachelor of Science, Bachelor of Science in Education, Bachelor of Science in Industrial Science. Bachelor of Science in Medical Technology, Bachelor of Science in Nursing.

Students preparing to be teachers are candidates for the degree of Bachelor of Science in Education. They may major in Early Childhood Education, Elementary Education, Industrial Arts Education, Secondary Education, Special Education, or Vocational Education (through an off-campus program). Students in Secondary Education may select a subject-matter major from one of the following fields: Biology, Chemistry, English, Geography, History, Mathematics, or Physics. Bachelor of Arts programs are available in Biology, Chemistry, English, Geography, History, Mathematics, Physics, Psychology and Sociology. Bachelor of Science Programs are currently available in Biology, Chemistry, Computer Science, Human Services, Mathematics, Psychology, Physics and Sociology.

The campus consists of academic buildings and laboratories, a library and administration center, three residence halls, a dining commons, and a gymnasium. Newest buildings on the main campus include two of the residence halls for women and a large auditorium-theatre. Either in construction or final planning are a new Fine and Industrial Arts building, a Special Education Center, and a multi-story combined Library and Campus Center.

A short distance north of the main campus are a thirty-four acre athletic and recreational area and the new 1000-pupil McKay Campus School, comprised of a modern elementary and junior high school. This new school retains and expands one of the College's outstanding features, a laboratory school system for children and college students, exemplifying the best in educational theories and practices and sharing these developments with school districts throughout the Commonwealth.

The Biology Department maintains a 75-acre field station on the property of 4-H Camp Middlesex in Ashby, Massachusetts. This facility serves as a focal point for course work and research in field biology, conservation and ecological study.

FITCHBURG STATE COLLEGE

GOALS AND OBJECTIVES

THE COLLEGE COMMUNITY

Goal

A paramount objective of Fitchburg State College is the promotion of the welfare of the entire College community. To this end the College aims:

Objectives

1. To provide a systematic evaluation of present programs, policies, practices, and all members of the College community, as well as the regular assessment of needs in conjunction with short-, medium-, and long-range planning.
2. To strive for the recognition of and respect for the rights and responsibilities of all members of the College community.
3. To establish and maintain well-defined and open channels of communication throughout the structure of the College.
4. To maintain a clearly defined system of governance which calls for active participation by representatives of students, faculty, and administrators.
5. To encourage individuals in their search for meaningful truth and in the honest consideration of ideas both in the classroom and in communication with all members of the College community.

STUDENT DEVELOPMENT

Goal

The intellectual, esthetic, and moral development of students during their college years demands the existence on campus of a "tone" or climate suitable to the attainment of this goal. Therefore, the College aims:

Objectives

1. To develop a spirit of commitment to learning by stressing high standards of intellectual performance, by encouraging scholarly research, by developing the ability to analyze and synthesize knowledge from a variety of sources, and by communicating the conviction that learning is a life-time process.
2. To enable students to acquire knowledge in areas such as the Humanities, Social Sciences, Physical Sciences, Biological Sciences and Mathematics as well as a depth of knowledge in at least one academic discipline and/or interdisciplinary studies.
3. To strive for moral development which requires reflection on and self-appropriation of ethical principles as a guide for personal conduct, as a basis for self-esteem, and as an aid to growing in respect for others.
4. To assist students:
 - a. to recognize the great moral issues of our time;
 - b. to develop respect for all peoples;
 - c. to seek the improvement of the quality of human life in areas such as environment, social problems and other relevant issues of the day.
5. To establish those conditions which are conducive to an esthetic environment that involves students and faculty in the determination and promotion of cultural activities.

CAREER EDUCATION

Goal

The College aims to assist students in identifying their own personal goals and in deciding upon their careers. To attain this goal, the College strives:

Objectives

1. To prepare students to meet the needs of society through careers in areas such as teaching, nursing, medical technology, human services, business, industry, and government, among others.
2. To provide programs preparing students for these careers, including programs geared to new and emerging career fields.
3. To provide options and opportunities, including field services, which aid students in securing employment.
4. To provide additional training opportunities intended to renew and update persons already holding jobs.

THE COMMUNITY AT-LARGE

Goal

The college must acknowledge some responsibility touching on the life of the local, regional, State and national communities. To this end it should aim:

Objectives

1. To serve as a cultural and intellectual Center for these communities.
2. To cooperate with local, regional, State and federal agencies in attempting to solve local, regional, State and national social, economic or governmental problems.
3. To provide for continuing adult education.
4. To facilitate involvement of students in neighborhood and community service activities.
5. To make most effective and efficient use of the human, natural and material resources provided by these communities.

COLLEGE GOVERNANCE

Among the many organizations on campus the All-College Council plays a central and vital role. The Council is composed of five students, five faculty members, and five administrators, all elected by their peers. The Council shares in governance in matters which concern the whole College Community. This means that the Council not only deals with problems which arise, but also recommends policy in areas affecting the entire College Community.

The College also has an Administrative Council, a Faculty Senate, and a Student Government Association which deal with questions and policies relating to their respective areas and groups. The Fitchburg State College Education Association/MTA is the collective bargaining unit representing the College's faculty.

The College Library

The many changes which are taking place in the complex world of higher education demonstrate clearly that no college can hope to serve its academic community without a good library. Fortunately, the present library at Fitchburg State College is now developed to the point that it makes available to its faculty and students a comprehensive collection of 105,000 books, 1000 periodical titles, and more than 90,000 microforms. These carefully selected materials offer a high level of support to the college curriculum, and provide students with a wide range of material.

The availability of such necessary research tools as the ERIC microfiche collection makes it possible for students to quickly locate pertinent information in all areas of educational research. The staff of the college library makes every effort to offer the highest level of assistance to the students. This assistance in-

cludes instruction in the use of the card catalog, the periodical indices, and the reference and microfilm collections. Students are encouraged to seek the assistance of the staff in order that they can make maximum utilization of these library resources.

Instructional Media Department

The Instructional Media Department is located on the first floor of Edgerly Hall. Specialized facilities on the campus include a full-color television studio, two media production laboratories, an autotutorial laboratory, a photographic dark room, an audio recording studio, a curriculum library with an information retrieval system, a language and learning laboratory at the McKay Campus School, and numerous lecture and resource facilities throughout the campus. The faculty and support personnel of the Instructional Media Department provide consultation, instruction and production assistance in television, photography, cinematography, graphics, equipment operation and audio recording. Instructional design, mediated teaching programs, programmed instruction and multi-media design and production also represent a large part of the department's activities. Members of the college community are urged to use the Media Department's services and should visit the main office in Edgerly Hall.

The College Computer Center

The Fitchburg State College Computer Center is a service department of the College. Facilities are provided to service the administrative, educational and research needs of the campus. The principal units of equipment in the Center at the present time are a Control Data Computer CDC-731 Remote-Job-Entry terminal which is connected to a Boston-based CDC Cyber-70 computer, a National Cash Register Century-50 computer, and an International Business Machine 1620 computer.

Computer usage ranges from the computation of assigned classroom problems to the support of special research projects of administrators and faculty. Many students begin to use the computer early in their programs of study and some continue to do so into graduate work. Opportunities to pursue courses of study oriented toward computer science are available and are described elsewhere in this catalog.

Information processing facilities at Fitchburg State College fall into two types: those provided within the Computer Center, which serves as a large and versatile central computing facility; and those provided through the Physics Department, which offers use of on-line teletypes for interacting with either the CDC central system or the in-house Digital Equipment Corporation PDP-8 mini-computer.

ADMISSION OF STUDENTS

Fitchburg State College endeavors to offer admission to those students whose high school records and backgrounds offer promise of a successful and satisfying college experience. Each applicant is considered individually, and the decisions of the Committee on Admissions are based on many factors. No consideration is given to an applicant's race, religion or national origin.

Taken into consideration are the high school record, scores on tests administered by the College Entrance Examination Board, recommendations by the high school principal or guidance counselor, and the extra-curricular and outside-of-school activities. Strong emphasis is placed on the high school

record and rank in class.

Applications are accepted beginning in October. In order to be given consideration the application and all supporting credentials should be received no later than March 1.

Applications

It is necessary that applicants to the College comply with all the following requirements:

1. Application Form. To be submitted to the Admissions Office as early as possible during the senior year in high school. Applications may be obtained at high schools, Community Colleges, or State Colleges throughout the Commonwealth of Massachusetts.

2. Submission of a transcript of the complete high school record through the first marking period of the senior year. This must show a minimum of 16 units, preferably in college preparatory subjects. (All students, before entrance to college, must be graduated from high school or offer equivalent preparation.)

3. Submission of the College Entrance Examination Scholastic Aptitude Test (SAT) scores and the Student Descriptive Questionnaire (SDQ). The College welcomes the results of the College Entrance Board Achievement Tests. Many candidates present Achievement Tests in English and applicants who expect to continue in a foreign language in college should take an Achievement Test in that language. Other Achievement Tests may be taken in the student's major fields of interest. Junior year SAT scores are acceptable but it is strongly recommended that the senior year examinations also be taken. Note that it is the applicant's responsibility to arrange for the forwarding of the necessary test scores directly to the College from the Educational Testing Service, in Princeton, New Jersey. The college code number is R3518.

A recommendation of the applicant from his or her high school principal or guidance officer giving evidence of academic interest, ability, and preparation, should be sent to the Admissions Office.

Interviews are not required and are not a part of the selection process. However, applicants who desire to have an interview or to visit the campus are invited to write the Admissions Office for an appointment. Interviews are not scheduled on Saturdays or holidays.

Fitchburg State College employs a "rolling admissions" policy. Rather than a simultaneous notification of all applicants of their acceptance, the candidates are notified on a continuing basis over a period of several months.

College Level Examination Program

The primary goal of the College Level Examination Program (CLEP) is to make it possible for an individual to earn college credit on the basis of examinations. CLEP is a program of the College Entrance Examination Board. The CLEP examinations are very useful for traditional and regularly enrolled students, but they are especially valuable for people whose learning experiences have taken place primarily outside formal college classrooms.

Policy Statement

I. General Policy

Appropriate credit can be granted on the basis of general and/or individual Subject Examination results. However, a student may not be awarded more than sixty (60) college credits through the CLEP Program.

II. Specific Policies

1. Credit for, or waiver of courses will be recorded only for students who have matriculated at Fitchburg State College.
2. Credit earned or requirements waived will be recorded by the Registrar upon receipt of an official score report from the College Entrance Examination Board. In recording results from the Subject Examination for which the Essay is required, approval of the major department and the General Education Council will also be necessary.
3. Credit for the General, or for any of the Subject Examinations will not be granted if the student has completed, satisfactorily, one or more of the courses listed as equivalent courses to the CLEP Examinations.
4. In order to receive transfer credits obtained under CLEP from another institution, the applicant must have a score which is equal to, or greater than that score which is the required minimum for credit at Fitchburg State College.
5. The faculty of each academic department within the College will have the right of rejecting such credits as a means of satisfying major program requirements. Where this right is exercised, the equivalency credits granted may be applied to the general education requirements or to electives when appropriate.

III. Distribution of Credits

1. General Examination

A candidate who scores 500 or better on the English Composition will be required to write and satisfactorily complete an essay administered by the English Department of the College.

	Score	Credits
A. English Composition	500	6
B. Humanities		
Fine Arts	50	3
Literature	50	
C. Mathematics	500	6
D. Natural Science		
Biological	50	3
Physical	50	3
E. Social Sciences/History		
Social Science	50	3
History	50	3

IV. Subject Examination: Distribution of Credits:

1. The amount of credit for each Subject Examination is based upon the amount of credit awarded for a comparable course offered at the College.

2. The minimum score recommended for each Subject Examination is based upon the mean score of the "C" students in the normative group.
3. The credit award for each Subject Examination is based upon the candidate attaining a score equal to or above the mean score in each subject examination.

V. Evaluation:

1. This policy shall be periodically evaluated to determine its appropriateness in terms of the educational objectives of Fitchburg State College.
2. The faculty of each academic department within the College will have the option of rejecting such credits as a means of satisfying major program requirements. Where this option is exercised, the equivalency credits granted may be applied to the general education requirements or to electives.
3. The Subject Examinations of CLEP are constantly being expanded to include additional subject areas. As soon as score-interpretation material is available for evaluation, additional CLEP Examinations will be added. The granting of credit for these new Subject Examinations should follow the general policy suggested in this Policy Statement.

Information concerning the minimum grade scores, as well as the CLEP Program, may be obtained by writing to the CLEP Program Director, Fitchburg State College.

Qualifying Examination in English Composition

Students scoring 600 on the SAT Verbal Test or the CEEB English Achievement Test, as well as those who have done consistently well in high school English or who know that they write well, are advised to take a CLEP exam for possible exemption from and possible credit for English Composition I and II. In the case of transfer students with "P" grades or 3 s.h. credit, the English Department will administer an exam if the student desires. This exam exempts, but gives no credit.

Advanced Standing

A limited number of students are admitted to Fitchburg State on transfer from other colleges. Only students with satisfactory academic and personal records can be considered. Transfer into the Industrial Arts program can be made only in the Summer Session with the student's eligibility to continue thereafter dependent upon both his achievement and available space in the shop courses. (A minimum of 24 to 30 s.h. of acceptable credit is necessary for consideration as a transfer applicant.)

The following credentials must be submitted by transfer applicants:

1. Application for Admission.
2. Transcript or transcripts of all previous college work, including a statement of honorable dismissal from the last college attended.
3. A catalog from the previous college(s) with the courses taken clearly marked.

Transfer credits will normally be granted for work completed in other accredited colleges which was of passing grade or better and in courses similar in

content to courses offered at Fitchburg. This evaluation is made only after an application has been processed and admissibility has been determined, (Maintenance of a "C" average does not insure transfer to a State College). State College.)

Registered Nurses from diploma and/or associate degree programs are admitted to the Baccalaureate program. Advanced standing may be granted through (1) transfer credit, (2) challenge examinations (College Level Examination Program and Teacher-made examinations.) A total of 33 Nursing credits may be granted by competency examinations. In addition, see policy regarding CLEP examinations for General Education credits.

Transfer students exempted from a three-hour Composition requirement in any accredited college or junior college may be exempt from EN 10. No credit is to be given. Students exempted from a six-hour Composition requirement will be exempt from EN 10 and 12. No credit is to be given.

In accordance with Board of Trustees' policy the following guidelines have been established:

1. Applicants for transfer to any College in the Massachusetts State College system will be evaluated for admission on the basis of their previous college academic record.

2. Whenever possible, degree credit will be granted for course work completed at recognized institutions of higher education. Courses which do not fit the degree program may be counted as fulfilling the open elective requirements of the four-year curriculum. The transfer student will be required to fulfill the same degree requirements as any other student.

3. A student must successfully complete one year as a full-time student to receive a baccalaureate degree from Fitchburg State College, which normally must be the senior year.

4. Among equally qualified and eligible transfer applicants, priority in admissions will be as follows:

- a. First priority is given to transfer students in good standing from within the State College system.
- b. Second priority is given to qualified transfer applicants from Massachusetts Community Colleges.

To be given consideration, all applications should be made to the college by April 1.

HOUSING

Residence Hall accommodations on campus for both men and women are available on a limited basis. Rooms are assigned for the academic year with an Occupancy Agreement required. Most rooms are arranged for double occupancy and are furnished with single beds, wardrobes, and desk and chair.

No rebate of Residence Hall charges is made once a student has occupied a room. It is emphasized that occupancy is expected for the full academic year.

All residents are required to participate in a food service plan. Rebates on food service charges are prorated on the same basis as tuition refund policy.

STUDENT COSTS

The following list includes the essential expenses (exclusive of such items as clothing, travel, and entertainment) for which a student would budget for an academic year:

Application Fee (not refundable nor applicable to tuition)	\$ 10
Tuition	\$300 (\$150 per semester)
Tuition (out-of-state students)	\$600 (\$300 per semester)
Registration Fee	\$ 50
Student Activity Fee	\$30 (\$15 per semester)
Athletic Fee	\$25 (\$12.50 per semester)
Books, Supplies	\$150
Library Fee	\$10 (\$5 per semester)
Placement Fee (seniors only)	\$ 5
Resident Hall Deposit	\$ 50
Room and Board	(See item 5)
Educational Services Fee	\$10 (\$5 per semester)
Residence Hall Damage Deposit	\$ 25
Insurance (optional)	Approximately \$ 30

All fees are subject to adjustment by the Board of Trustees of State Colleges in keeping with changing costs of operations.

All bills must be paid with either cashiers checks, money orders, bank checks or travelers checks. No personal checks will be allowed.

1. Application Fee

\$10 (not refundable nor applicable to tuition).

2. Tuition

A. For residents of Massachusetts: \$300 per year-payable in two installments of \$150 at the beginning of each semester of 1974-1975.

B. For non-residents: \$600 per year—payable in two installments of \$300 at the beginning of each semester.

3. Registration Fee

A Registration Fee of \$50 is required of all new students upon acceptance. It is not refundable, but is credited against the first semester tuition for students enrolling in the College.

4. Student Activity Fee and Athletic Fee

All students are required to pay a Student Activity Fee of \$30.00 per year (\$15.00 per semester) and an Athletic Fee of \$25.00 per year (\$12.50 per semester). These non-refundable charges support certain extra-curricular and organizational programs on campus.

5. Room and Board for Resident Students

The cost of board is \$424 per academic year—5 day plan; \$456, per academic year 7 day plan, but the room cost depends upon the hall to which a student is assigned. The maximum charge for room and board at present is \$1,136 annually and is payable in equal installments at the beginning of each semester.

A residence hall deposit of \$50 is required of all students accepted for rooming in a College residence hall. This payment, not refundable, is credited against the room charge.

6. Tuition Refund Policy

A. For new students, freshmen and transfers: For all new students, there is a \$50 non-refundable tuition deposit. Such deposit

shall be credited to the student first semester tuition charges. If such a student withdraws prior to the beginning of classes or within the first week after the beginning of classes, he shall be entitled to a refund of two-thirds of the tuition charge. If he withdraws between the end of the first week and the end of the second week, he shall be entitled to a refund of one-half the tuition charge. If he withdraws between the end of the second week and the end of the third week, he shall be entitled to a refund of one-third of the tuition charge. A student withdrawing after the third week of classes shall receive no refund.

B. For returning students: A returning student who has paid his tuition prior to the opening of school and who notifies the school that he will not be attending any classes will be entitled to a full refund of all tuition. If he withdraws between the beginning of classes and the end of the first week he shall be entitled to a refund of two-thirds of the tuition charge. If he withdraws between the end of the first week and the end of the second week he shall be entitled to a refund of one-half the tuition charge. If he withdraws between the end of the second week and the end of the third week he shall be entitled to a refund of one-third the tuition charge. A student withdrawing after the third week shall not be entitled to any refund.

7. All costs listed above reflect Trustee Policy as of May 1, 1974. Future Trustee actions can result in increased costs.

Past Due Student Accounts

Any indebtedness to the College which becomes past due immediately jeopardizes the student's enrollment, and no such student shall be permitted to graduate or register for a subsequent semester or summer school term. Further, any student who fails to pay all indebtedness to the College may not be issued transcripts, diplomas, degrees, or other official statements.

Due dates are posted annually by the Chief Fiscal Officer.

VETERAN EDUCATION

Fitchburg State College is an approved institution for providing education for the returned veteran.

Veterans are urged to keep themselves informed about benefits available to them through the Veterans Administration. Information may be obtained from:

John F. Kennedy Federal Building
Veterans Administration—Regional Office
U.S. Government Center
Boston, Massachusetts 02203

Vietnam Veterans from Massachusetts are entitled to attend Fitchburg State College on a no-tuition basis. Additional information may be obtained from:

The Commonwealth of Massachusetts
Department of Education
182 Tremont Street
Boston, Massachusetts 02111

FINANCIAL ASSISTANCE

Fitchburg State College participates in the following Federal programs which are designed to provide financial assistance to students while in college. Those administered by the College are:

1. *The National Defense Student Loan and Nursing Student Loan Programs.* These programs are primarily designed for needy students and offer very favorable repayment terms. Under certain conditions a portion of the loan may be canceled for teaching or nursing service after college.

2. *The Educational Opportunity Grant and Nursing Scholarship Programs.* These are direct Federal scholarships based on exceptional financial need and evidence of academic promise. These grants do not have to be repaid.

3. *College Work/Study Program.* Campus employment for which students, particularly from low-income families, are paid for a specific number of hours of work each week.

4. *Basic Educational Opportunity Grant Program. (BEOG)* These awards are direct grants from the Federal Government to eligible students who are entering, or have enrolled in an approved post-secondary school for the first time after April 1, 1973 and are attending on a full-time basis.

Information regarding the Massachusetts State Scholarship Program can be obtained from the high schools or the Board of Higher Education Scholarship Office, 182 Tremont Street, Boston, Ma. 02111. The College does not administer this program.

A limited number of Special Education scholarships are available for students planning to teach mentally retarded children. Students who major in Special Education may also apply for the Commonwealth of Massachusetts Board of Higher Education General and Honor Scholarships.

The College also employs a limited number of students to work on campus.

Evidence of need is basic to all financial aid programs at the College. In order to assess such a need as fairly as possible, the College participates in the College Scholarship Service (CSS). Each applicant for financial aid must file a Parent's Confidential Statement (PCS) with CSS prior to April 1 of each year. These forms may be obtained from high schools, colleges, or the College Scholarship Service, P.O. Box 176, Princeton, New Jersey 08540.

Students who are self-supporting, under guardianship, or married, separated, or divorced submit a Student Confidential Statement (SCS) to College Scholarship Service Box 1501, Berkeley, Calif. 94701.

In addition to the Parent's Confidential Statement or the Student Confidential Statement, a Fitchburg State College application for financial aid is also required each year. These forms are available from the Financial Aid Office.

Additional information regarding financial aid may be obtained by writing to the Director of Financial Aid.

HEALTH CENTER

Quintino Rollo, M.D., Director
Svend W. Brunn, M.D., College Physician
Joel Neuschatz, M.D. College Physician

The Health Center is located at 364 North Street, it is open to all College students on a regular basis during the week with definite hours posted for the medical staff. There are also two full-time registered nurses in attendance at the Health Center.

COUNSELING CENTER

Raymond E. Bryant, M.Ed., Acting Director
 Susan Schenkel, Ph.D., Counselor
 Paul E. Tarasuk, Ed.D., Counselor
 Anthony A. Ferrante, M.D., Consulting Psychiatrist

The Counseling Center provides a variety of services for students, primarily in the areas of personal or emotional difficulties, educational planning, and vocational choice. Staff members are professionally trained counselors who work with students to increase their self-understanding and enable them to solve their own problems more effectively. Students come to the Counseling Center for this confidential service; occasionally, with the full consent of the student, a referral is made to an appropriate community or state agency for additional help.

In addition to personal and vocational counseling, the Counseling Center offers remedial work in the areas of reading and improvement of study skills. A career development test battery and a career development library are available for students who wish to explore their career interests, personality, and values.

The Counseling Center is open from 8:30 a.m. to 5:00 p.m. weekdays, and is located at 295 Highland Avenue, Fitchburg. Students may make appointments by visiting the Center or by telephoning 343-6417, extension 296. In case of urgent need students will be seen without prior arrangement.

PLACEMENT

The Placement Office, located in the college Counseling Center, maintains a current file of openings to assist seniors, graduates and alumni to obtain employment. Representatives of secondary and elementary schools and government agencies, as well as recruiters from business and industry, regularly visit the campus to interview students for possible employment. Both seniors and alumni should register with the Placement Office in order to qualify for on-campus interviews and other placement services which are provided throughout the graduate's entire career.

REQUIREMENTS FOR GRADUATION

1. Successful completion of all required courses and of the total semester-hour requirements of the program.
2. A 2 or better cumulative average for the total program.
3. A 2 or better average in the major field.
4. The successful completion of a standard first aid course in all Teacher-Education curricula.
5. The completion of a minimum of 30 semester hours at the college which normally must be in the senior year.
6. All Teacher Education majors must take the National Teacher Examinations before graduation.
7. Students graduating in June must file an application for graduation with the Registrar not later than February 1 of the year of graduation.

All graduates of Fitchburg State College must, according to State law, demonstrate a knowledge of the United States Constitution and the Constitution of Massachusetts. Students may meet the requirement by passing a written examination administered by the Department of Social Science. A pamphlet given further information about the examination and a study guide may be obtained from the College Book Store. Students who successfully complete one of the following courses: Political Science 10, 20, 22, History 21, 22 are excused from the examination.

Screening Policies for Student Teaching

1. Positive recommendation of a majority of the faculty members in the area of the major and/or specialization.
2. A demonstrated effectiveness in oral and written communication as evidenced by use of currently acceptable levels of English.
3. The successful completion of a standard first aid course.
4. The successful completion of the tuberculin test.
5. Each candidate should possess a 2.0 cumulative index and a 2.0 index in his major field, as each department defines "major field." No incomplete in any course is allowed. No probational status is allowed. No unresolved failure is permitted in a candidate's major field.
6. A student convicted of a felony as defined and identified by the courts of any state is automatically ineligible for a teacher education program.

NOTE: An incomplete or failure in student teaching necessitates the repetition of the course. Each student must furnish transportation to his teaching assignments.

ATTENDANCE REGULATIONS

It is the responsibility of each instructor to maintain a record of attendance for students in his classes. Should the need arise for verification of a student's attendance, direct reference will be made to the faculty members involved.

Class attendance is a matter for instructor and student to consider. It is the prerogative of the instructor to place whatever value seems indicated upon attendance at class and his duty to inform his students of his views early in the semester. Students will not be dropped from class on basis of absences.

Where validation of an absence is available through any source, it is recommended that the student show the validation to all instructors concerned and then place it on file in the Registrar's office.

GRADING SYSTEM

The grades given for academic work at Fitchburg State College run from 0 through 4 with .5 intervals from 1 to 4 (1, 1.5, 2, 2.5, 3, 3.5, 4). Zero indicates academic failure for a course. 1 or 1.5 is poor but passing, 2 or 2.5 is average, 3 or 3.5 is good and 4 is excellent. Quality points are determined by the following process: The number of semester hours in each course is first multiplied by the grade. Thus a student who takes five, three semester hour courses and receives two grades of 3 (18), two grades of 2 (12) and a grade of 1.5 (4.5) has a total of 34.5 points to be divided by the total of semester hours attempted (15) and attains a quality point average of 2.3 for the semester. An average of 3.2 or better qualifies a student for the Dean's List.

INCOMPLETE GRADES

The grade of Incomplete (I) is given only if at least 80% of the course work has been completed at the time of discontinuance due to illness or similar disability. Incomplete grades must be made up within eight weeks after the opening of the following semester in which the student registers. The "I" becomes an "F" grade if the student fails to make up the work and fails to take the Final Examination within the prescribed time limit. Incomplete grades do not affect a student's dismissal or retention by the College.

Failures in required courses must be made up. The failure (Grade 0) in any course is removed from the cumulative average upon receipt of a passing grade in that course. However, the cancelled failure shows on the record.

QUALITY POINTS, REQUIREMENTS AND ACADEMIC PROBATION SCHEDULE

The student's quality point ratio shall be cumulative, semester by semester.

END OF SEMESTER	YEAR	PROBATION	DISMISSAL
1	FRESHMAN	NOT APPLICABLE	NOT APPLICABLE
2	FRESHMAN	1.50-1.74	BELOW 1.50
3	SOPHOMORE	1.50-1.74	BELOW 1.50
4	SOPHOMORE	1.75-1.99	BELOW 1.75
5	JUNIOR	1.75-1.99	BELOW 1.75
6	JUNIOR	NO PROBATION	BELOW 2.00
7	SENIOR	NO PROBATION	BELOW 2.00
8	SENIOR	NO PROBATION	BELOW 2.00

Dean's List rank is a cumulative index of 3.2 or better.

WITHDRAWAL FROM A COURSE

Students may withdraw from a course during the first two weeks of the semester without penalty by notifying the instructor and the Registrar, using a form obtainable from the Registrar's office. Between the end of the second and the end of the twelfth week of classes, they may withdraw by obtaining the permission of the Instructor and the Academic Dean; students withdrawing from Teacher Education courses will see the Dean of Teacher Education; students who withdraw during this period will receive a grade of "W". Any student who fails to follow these procedures will automatically receive an "F" (grade 0) for the course.

Normal minimum course load is 12 semester hours. Anyone taking less than 12 hours should normally enroll through the Evening Session.

WITHDRAWAL FROM COLLEGE

A student must report to the appropriate Associate Dean of Students and obtain a withdrawal form. This form must be properly completed and returned to the office of the Associate Deans.

Failure to follow this procedure will result in a W/F grade in all courses.

PARKING REGULATIONS

Parking facilities at Fitchburg State College are limited, but are being gradually expanded.

Commuting students are required to obtain identification stickers if they wish to park in student lots on campus.

There are no parking areas assigned to resident students. Juniors and senior residents whose curricula require travel to nursing and teaching assignments should confer with the Student Personnel Office.

Degree Programs

UNDERGRADUATE CURRICULUM

Students in all of the College's undergraduate degree programs must fulfill both a General Education requirement of required and elective courses, and the courses in their major fields. Students in human services, medical technology, nursing, and teacher education have formal off-campus professional experiences as a part of their degree requirements. Students must have the approval of their departmental faculty advisors in planning their academic programs.

GENERAL EDUCATION

The General Education program constitutes a core curriculum to be taken by all students. As indicated in more detail below, it allows a rather wide choice of courses within a variety of academic fields. The purpose of this program is to provide opportunity for each student to have personal experience of various kinds of human knowledge, all of which contribute to the development of a fully educated person. With this broad background, it is expected that a student's subsequent choice of courses and of areas of specialization will be well informed. Courses, both required and elective, are in the areas of Natural Sciences, Mathematics, and Social Behavioral Sciences, and Humanities. All students complete 60 semester hours^(sh) in General Education.

*Semester hours indicate the academic credit given for class meetings. Thus a college course meeting for three lecture hours a week for a semester (one half an academic year) carries three semester hours of credit toward graduation when successfully completed. Two hours of laboratory will equal one hour of lecture in terms of semester hours credit.

A. Required Courses	Semester Hours
1. English Composition I and II (or pass proficiency examination)	6
2. Basic Speech (or pass proficiency examination)	3
3. Health and Physical Fitness	3

4. A non-credit examination on the federal and state constitution (or equivalent academic requirements as authorized by the Social Sciences Department). must be taken to satisfy Massachusetts General Laws of Education (Chapter 3, Section 20),

B. Distribution of Additional General Education Courses
(See respective programs for General Education prerequisites.)

1. Humanities Group 15
2. Social and Behavioral Sciences Group 15
3. Science/Mathematics Group
(4 semesters of course work) 12-16
N.B. In meeting requirements B. (1,2,3), no more than 8 sh in any single discipline, as defined below, may be used.
4. Elective General Education courses to complete 60 sh in the General Education program.

<i>Humanities Group of Disciplines</i>	<i>Social and Behavioral Sciences Group of Disciplines</i>	<i>Science/Math Group of Disciplines</i>	<i>Other Discipline</i>
Art	History	Mathematics	Physical
History	Economics	Biology	Education
Music	Geography	Chemistry	
Literature	Government/Pol. Sci.	Computer Science	
Speech	Psychology	Physics	
French	Sociology/Anthropology	Physical Science	
Spanish		(Physical Science cannot	
German		be used if either Chemistry	
Russian		or Physics is used)	
Philosophy		Earth Science/Astronomy/ Meteorology/Geology	

GENERAL REQUIREMENTS FOR SOME DEGREE PROGRAMS

Behavioral Sciences Sequence

The following Behavioral Science courses are common to all secondary education majors.

	Sem. Hrs.
PY 23 Adolescent Psychology	3
PY 95 Tests and Measurements	3
Total 6 Sem. Hrs.	

BACHELOR OF ARTS DEGREE FOREIGN LANGUAGE REQUIREMENT

Where a foreign language for the Bachelor of Arts degree is required by a Department students must be proficient at the second-year college level.
college level.

History Specialization

Students in the Elementary Curriculum who wish to specialize in History may do so by electing 15 semester hours of History under the guidance of the Social Sciences Department, from the History elective offerings.

Language Arts Specialization

Students in the Elementary Curriculum who wish to specialize in Language Arts may do so by electing the following under the guidance of the Elementary Education Department:

ED 40, 41

EN 80

PY 15, 16

Mathematics Specialization

Students in the Elementary Curriculum who wish to specialize in Mathematics can do so by electing 21 semester hours of mathematics under the guidance of the Mathematics Department.

Required MA 01, 02 or 12 — 6 hrs.

MA 20, 02 or 12 — 3 hrs.

Elect four courses, 20 level or higher.

CS 10, Computer Programming, is a recommended elective.

Music Specialization

Students in the Elementary Curriculum who wish to specialize in Music may do so by electing the following under the guidance of the Music Faculty.

MU 10, 22 (or equivalent), 83 or 80, 42, 43, 44, 45

Three semesters of any combination of MU 41 and/or 40

Two Music Electives

Science Specialization

Students in the Elementary Curriculum who wish to specialize in Science may do so by electing 15 semester hours of science under the guidance of the Biology or Chemistry or Physics Departments.

Elect 15 hours from the following:

BI 10, 11, 20, 29, 21, 25, 26, 23, 31

CH 11, 12

GE 21, 25

PH 11, 12

SC 11, 12

UNDERGRADUATE EVENING SESSION

Since 1963 a program leading to the Bachelor of Science degree in Industrial Science has been available to qualified high-school graduates now in business or industry.

In cooperation with the Day Session of the College, the Evening Session also offers a series of courses in a sequential development that helps part-time students work for degrees in Education or Liberal Arts. These courses are also open to full-time students. Part-time students realize that eventually they must transfer into the day session to complete the requirements of their degree. Additional information can be secured by writing the Director of the Evening Session.

SUMMER SESSION

The Division of Graduate and Continuing Education offers a six-week Summer Session on the undergraduate and graduate levels, offering courses from the Freshman level through the Master's Degree. The Summer Session offers morning and evening classes, full library services, and opportunities for residence hall living. The Session features varied workshops, practicums, and outdoor environmental laboratories.

GRADUATE STUDIES

The Division of Graduate and Continuing Education offers two degree programs in keeping with its prime purpose of providing opportunities for professional and scholarly advancement to the educational personnel of Central New England. This it does in the form of a Master of Education Degree permits specialization in eleven different vocational and educational areas. It also offers the Master's of Arts in Teaching (M.A.T.) degree in English. Graduate courses are also offered for people who do not choose to enroll in either Master's Degree Program. The Graduate Division believes that it should assist in the development of educational leadership to advance the quality of education in its geographical area.

Inquiries concerning admission procedures in the Graduate Division may be addressed to the Director of Continuing Education.



SPECIFIC DEGREE REQUIREMENTS FOR MAJORS

Total semester-hour requirements for degrees in specific majors vary from department to department.

Biology, Bachelor of Science in Education, Secondary

(120+ semester hours—30 semester hours in Biology)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	6
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 14 sh

Functions	3
Electives in Mathematics or Statistics	3
General Chemistry I & II	8

Social Sciences 15 sh

Humanities 15 sh

BEHAVIORAL SCIENCES 3 sh

Tests & Measurements	3
* General Psychology	3
* Adolescent Psychology	3

* May be applied to the
Social Sciences Category

BIOLOGY 30 sh

Introductory Biology	3
General Zoology	3
General Botany	3
Developmental Biology	3
Introductory Ecology	3
Genetics	3
Cell Biology	3
Biology Electives	9

PROFESSIONAL REQUIREMENTS 21 sh

Successful Practices in Secondary Education	3
Design, Preparation, and Production of Instructional Materials	3
Biology Methods	3
First Aid	cr.
Student Teaching	12

RELATED REQUIREMENTS 14 sh

Introductory Physics I & II	6
Organic Chemistry I & II	8

Biology, Bachelor of Arts

(120+ semester hours—30 semester hours in Biology)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	6
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 14 sh

Functions	3
Electives in Mathematics or Statistics	3
General Chemistry I & II	8

Social Sciences 15 sh

Humanities (6 sh of foreign language requirements may be applied.) 15 sh

OTHER DEGREE REQUIREMENTS

Foreign Language (Proficiency at 2nd yr. level. If waived, to be replaced by free electives.)	12 sh
---	-------

BIOLOGY 30 sh

Introductory Biology	3
General Zoology	3
General Botany	3
Developmental Biology	3
Introductory Ecology	3
Genetics	3
Cell Biology	3
Biology Electives	9

RELATED REQUIREMENTS 14 sh

Introductory Physics I & II	6
Organic Chemistry I & II	8

FREE ELECTIVES 11-18 sh

Biology, Bachelor of Science

(120+ semester hours—30 semester hours in Biology)

GENERAL EDUCATION (60 sh minimum)		BIOLOGY	30 sh
English Composition I & II	6	Introductory Biology	3
Speech	3	General Zoology	3
Health and Fitness	3	General Botany	3
State & Federal Const. Prof.		Developmental Biology	3
		Introductory Ecology	3
Math/Science	14 sh	Genetics	3
Functions	3	Cell Biology	3
Elective in Mathematics or Statistics	3	Biology Electives	9
General Chemistry I & II	8	RELATED REQUIREMENTS	14 sh
Social Sciences	15 sh	Introductory Physics I & II	6
		Organic Chemistry I & II	8
Humanities	15 sh	FREE ELECTIVES	23-30 sh

Chemistry, Bachelor of Science in Education, Secondary

(120+ semester hours—29 semester hours in Chemistry)

GENERAL EDUCATION (60 sh minimum)		CHEMISTRY	29 sh
English Composition I & II	3/3	General Chemistry	4/4
Speech	3	Organic Chemistry	5/5
Health and Fitness	3	Quantitative Analysis	4
State & Federal Const. Prof.		Physical Chemistry	4
		Instrumental Analysis	3
Math/Science	17 sh	CHEMISTRY ELECTIVES	
Physics I & II	4/4	Natural Products Chemistry	3
* Math (Calculus I & II)	3/3	Advanced Inorganic Chemistry	3
Modern Physics	3	Independent Study	3
Social Sciences	15 sh	PROFESSIONAL	21 sh
Humanities	15 sh	Successful Practices in Secondary Education	3
BEHAVIORAL SCIENCES	3 sh	Design, Preparation, and Production of Instrumental Materials	3
Tests & Measurements	3	Chemistry Methods	3
* * General Psychology	3	Student Teaching	12
* * Adolescent Psychology	3	First Aid	cr.
* Prerequisite: Algebra and Elementary Functions		FREE ELECTIVES	3 sh
* * May be applied to the Social Sciences category.			

Chemistry, Bachelor of Arts

(120+ semester hours—37 semester hours in Chemistry)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science	17 sh
Physics I & II	4/4
Math (Calculus)	3/3
Modern Physics (recommended)	3

Social Sciences	15 sh
------------------------	--------------

Humanities	15 sh
(6 sh of foreign language requirements may be applied.)	
	6

Electives (From Gen. Ed. Area)	6 sh
---------------------------------------	-------------

OTHER DEGREE REQUIREMENTS**Foreign Language**

German I & II	3/3
German III & IV	3/3

CHEMISTRY **37 sh**

General Chemistry	4/4
Organic Chemistry I & II	5/5
Quantitative Analysis	4
Physical Chemistry I & II	4/4
Instrumental Analysis	3
Advanced Inorganic Chemistry	3

CHEMISTRY ELECTIVES

Independent Study	3
-------------------	---

FREE ELECTIVES (9-15 sh)**Computer Science, Bachelor of Science**

(120+ semester hours—39 semester hours in Computer Science)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health & Fitness	3
State & Federal Const. Prof.	

Math/Science	14 sh
Calculus I & II	3/3
General Physics I & II	4/4

Social Sciences	15 sh
------------------------	--------------

Humanities	15 sh
-------------------	--------------

Electives	4 sh
------------------	-------------

COMPUTER SCIENCE **39 sh**

Introduction to Computers I, II	6
Programming I, II	6
Information Systems I & II	6
Systems Programming I	3
Programming III	3
Electives	15

RELATED ELECTIVES

(Math, Physics)	21
-----------------	----

Early Childhood—Bachelor of Science in Education

(120+ semester hours—24 semester hours in Early Childhood)

GENERAL EDUCATION (60 sh minimum)		EARLY CHILDHOOD	24 sh
English Composition I & II	3/3	Foundations Early Childhood I	4
Speech	3	Foundations Early Childhood II	4
Health and Fitness	3	Curriculum I (Basic Reading)	4
State & Federal Const. Prof.		Curriculum II (Fine & App. Arts)	4
Math/Science	12-16 sh	Curriculum III (Language Arts)	4
Social Sciences	15 sh	Curriculum IV (Sci., Math, Soc. Stud.	4
Humanities	15 sh	First Aid	cr.
Electives (From Gen. Ed. Area)	6 sh	Student Teaching	12
BEHAVIORAL SCIENCES	8 sh	FREE ELECTIVES (Any related areas)	16 sh
Block I	4		
Block II	4		
* General Psychology	3		
* May be applied to the Social Sciences category			

Elementary, Bachelor of Science in Education

(121 semester hours—34 semester hours in Elementary)

GENERAL EDUCATION (60 sh minimum)		ELEMENTARY	34 sh
English Composition I & II	3/3	Prin. & Prac. in Education	3
Speech	3	Foundations of Education	3
Health and Fitness	3	Reading in Elementary	3
State & Federal Const. Prof.		Math Concepts	3
Math/Science	12-16 sh	Science in Elementary	3
Math	3	Music in Elementary	2
Social Sciences	15 sh	Art in Elementary	2
Humanities	15 sh	I.A. in Elementary	2
Art of Music	3	Phys. Ed. in Elementary	1
Electives (From Gen. Ed. Area)	6 sh	First Aid	cr.
BEHAVIORAL SCIENCES	3 sh	Student Teaching	12
Test & Measurements	3	SPECIALIZATION	15+ sh
* General Psychology	3	SUGGESTED FREE ELECTIVES	9 sh
* Child Psychology	3	Introduction to Geography	3
* May be applied to the Social Sciences Category		Geography U.S. & Canada	3
		Introduction to Sociology	3
		Psycho-Social Problems of Urban Children	3
		Learning Disabilities	3
		Children's Literature	3
		Guidance	3

English, Bachelor of Science in Education, Secondary

(120+ semester hours—30 semester hours in English)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh**Social Sciences** 15 sh**Humanities** 15 sh**Electives** (From Gen. Ed. Area) 15 sh**BEHAVIORAL SCIENCES**

Adolescent Psychology	3
Test and Measurements	3
* General Psychology	3

* May be applied to
Social Sciences category.

ENGLISH**30 sh**

Required:

English Composition I	Gen. Ed.
English Composition II	Gen. Ed.
Eng. Lit. I	3
Eng. Lit. II	3
English Electives	18

PROFESSIONAL**24 sh**

Successful Practices in Secondary Education	3
Design, Preparation, and Production of Instructional Materials	3
Reading in Secondary	3
Methods of Teaching English	3
Student Teaching	12
First Aid	cr.

FREE ELECTIVES

(To fill 120 sh)

English, Bachelor of Arts

(120+ Semester hours —36 semester hours in English)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Sciences 15 sh**Social Sciences** 15 sh

Humanities (6 sh of foreign
language requirements may
be applied.)

Electives (From Gen. Ed. Area) 6 sh**OTHER DEGREE REQUIREMENTS**

Foreign Language (Proficiency 6-12 sh
at 2nd yr. level. If waived,
to be replaced by free
electives.)

ENGLISH**36 sh**

Required:

Eng. Composition I (Gen. Ed.)	3
Eng. Composition II (Gen. Ed.)	3
Eng. Literature II	3
English Electives	24 sh

FREE ELECTIVES (To fill 120 sh)**ENGLISH****Departmental Honors**

Those students seeking Honors in English must have advanced junior standing and an overall grade point of 3.0, with a 3.4 in English. For further information apply to the English Department.

Geography, Bachelor of Arts or Science

(120+ semester hours—36 semester hours in Geography)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12/16 sh**Social Sciences** 15 sh

Introductory to Geography	3
---------------------------	---

Humanities 15 sh**Electives** (From Gen. Ed. Area) 6 sh

Note: B.A. degree includes foreign language proficiency at 2nd year college level. 6 sh of foreign language study may be used to satisfy Humanities requirement.

Geography**36 sh**

The Geography major may elect work in one of the following areas:

- (1) Earth and/or Environment Sciences
- (2) Urban-Community development and/or public Service
- (3) Area Development

Courses are structured so as to prepare the student for employment or graduate work.

Geography, Bachelor of Science in Education, Secondary

(120+ semester hours—30 semester hours in Geography)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh**Social Sciences** 15 sh

Introduction to Geography	3sh
* General Psychology	3

Humanities 15 sh

Electives	6 sh
-----------	------

BEHAVIORAL SCIENCE

* General Psychology	3
* Adolescent Psychology	3
Tests & Measurements	3

Students may meet the state certification requirements for teaching Earth Science, as well as Geography, by taking 18 sh in related courses which should be chosen after consultation with a member of the geography faculty.

GEOGRAPHY**30 sh**

(3)sh in General Education

PROFESSIONAL**21 sh**

Successful Practices in Secondary Education	3
Design, Preparation, and Production of Instructional Materials	3
Methods of Teaching Geography	3
First Aid	cr.
Student Teaching	12

FREE ELECTIVES (To complete 120 sh)

* General Psychology and Adolescent Psychology may be applied in either Social Science or Behavioral Science categories.

History, Bachelor of Science in Education, Secondary

(120+ semester hours—33 semester hours of History)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh**Social Sciences** 15 sh**Western Civilization**
(HI 10 & 12) 3/3**Humanities** 15 sh**Electives** (From Gen. Ed. Area) 6 sh**BEHAVIORAL SCIENCE**

* General Psychology	3
* Adolescent Psychology	3
Tests & Measurements	3

HISTORY 33 sh

Western Civilization (HI 10 & 12)	
(General Education)	3/3
U.S. History I & II	3/3

In addition each student must take 12 sh of History electives and an additional 9 sh of History or courses related to History (government, political science, economics, history of literature).

PROFESSIONAL 21 sh

Successful Practices in	
Secondary Education	3
Design, Preparation, and Production	
of Instructional Materials	3
Methods of Teaching History	3
First Aid	cr.
Student Teaching	12

FREE ELECTIVES (To fill 120 sh)

* General and Adolescent Psychology may be applied in *either* Social Science or Behavioral Science categories.

History, Bachelor of Arts

(120+ semester hours—36 semester hours in History)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health & Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh

Humanities (6 sh of foreign language requirements may be applied.) 15 sh

Electives (From Gen. Ed. Area) 6 sh**HISTORY** 36 sh

Social Sciences	15 sh
Western Civilization (HI 10 & 12)	
(General Education)	3/3
U.S. History I & II (HI 21 & 22)	3/3

In addition each student must take 15 sh of History electives and an additional 9 sh of History or courses related to History.

FREE ELECTIVES

(To fill 120 sh)

*Note: The B.A. degree includes foreign language proficiency at 2nd year college level. 6 sh of foreign language may be used to satisfy humanities requirement. Students who intend to do graduate work in History should devote serious study to at least one foreign language.

Human Services, Bachelor of Science

(120+ semester hours minimum—42 semester hours in Human Services)

Students in the Human Services program follow the model below:

GENERAL EDUCATION 60 sh

education, health, recreation, etc., based upon their career interests, to be worked out and approved by Human Services advisor.

Human Services Majors 42 sh**Human Services Core 18 sh**

Introduction to Human Services 3

Abnormal Psychology 3

Field Work I 6

Field Work II 6

Human Services Sub-areas 12 sh* +

Corrections

Mental Health

Community Development (Social Work, Welfare, Poverty)

School Psychology

Related Areas 12 sh

Students take courses in related areas; e.g., economics, political science, special

FREE ELECTIVES 18 sh

* Students may specialize in one of these areas, or take a generic approach with courses in several of the areas.

+ Other specialties which could be developed in this model are:

Speech and Communication Disorders

Rehabilitation Counseling

Industrial Psychology

Law Enforcement

This program is designed to provide both conceptual (class work) and experimental (field work) preparation for entry level positions in the Human Services (Social Work, Counseling, Corrections, Probation, School Psychology, etc.). All students share a common core of courses (Intro. to Human Services, Abnormal Psychology, and Field Work in the Behavioral Sciences). Students take additional courses plus courses in other departments in accordance with their career goals. This allows for maximum individual choice while still providing a basic background to enable students to go into many graduate programs and/or a variety of job possibilities. Students must work closely with their advisor. It is strongly recommended that students work as volunteers or as employees in community agencies, to gain extra experience as well as letters of recommendation for inclusion in their placement folders.



Industrial Arts, Bachelor of Science in Education, Secondary

(131 semester hours— 46 semester hours in Industrial Arts)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh**Social Sciences** 15 sh**Humanities** 15 sh**BEHAVIORAL SCIENCES** 6 sh

* General Psychology	3
* Adolescent Psychology	3

Professional 23 sh

Foundations of Industrial Arts I	2
Principles & Practices in I.A.	3
Student Teaching	10
Foundations of Industrial Arts II	3
Philosophy of Education	3
Seminar in Industrial Arts	2
First Aid	cr.

INDUSTRIAL ARTS**46 sh**

Shops (46 sh) Freshman Yr (16 sh)

Wood I	2
Metal I	2
Drawing I	2
Graphic Arts I	2
Power Mech. I	2
Electricity I	2
General Shop I	2
Design	2

Sophomore Year (18 sh)

Wood II	3
Metal II	3
Drawing II	3
Graphic Arts II	3
Power Mech. II	3
Electricity II	3

Jr. and Sr. Yrs. (12 sh)

Structures	3
General Shop II	3

Shop Electives**6 sh***May be applied to the
Social Sciences category.**Mathematics, Bachelor of Science**

(122 semester hours—33 semester hours in Mathematics)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh(Up to 8 sh of Math courses
may be applied for Math/
Science requirement.)**Social Sciences** 15 sh**Humanities** 15 sh**Electives (From Gen. Ed.)** 6**BEHAVIORAL SCIENCES**

Adolescent Psychology	3
Tests and Measurements	3
* General Psychology	3

MATHEMATICS**33 sh**

Calculus I	3
Calculus II	3
Calculus III	3
Calculus IV	3
Abstract Algebra I	3
Linear Algebra	3
Mathematics Electives	15

(Electives must be chosen from 30 or 40
level courses of which at least three must
be at the 40 level. MA 90 may be sub-
stituted for a 40 level course.)**FREE ELECTIVES****30 sh*** May be applied to
Social Sciences category.

Mathematics, Bachelor of Science in Education, Secondary

(122 semester hours—33 semester hours in Mathematics)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh**Social Sciences** 15 sh

General Psychology	3
--------------------	---

Humanities 15 sh**Electives** (From Gen. Ed. Area) 6 sh**BEHAVIORAL SCIENCES**

Adolescent Psychology	3
Tests and Measurements	3
* General Psychology	3

* May be applied to the
Social Science category

FREE ELECTIVES 2 sh**MATHEMATICS** 33 sh

Functions	3
(Functions may be waived with Department advice.)	
Calculus I	3
Abstract Algebra I	3
Calculus II	3
Linear Algebra	3
Calculus III	3
Geometry I	3
Calculus IV	3
Prob. and Stat.	3

Math electives selected from courses
numbered 30 or higher to make a total of
33 sh.

PROFESSIONAL 21 sh

Successful Practices in Secondary Education	3
Design, Preparation, and Production of Instructional Materials	3
Methods Materials in Sec. Math. I	2
Student Teaching	12
First Aid	cr.
Methods and Materials in Sec. Math. II (taken concurrently with Student Teaching)	1

Mathematics, Bachelor of Arts

(122 semester hours—33 semester hours in Mathematics)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh

(Up to 8 sh of Math courses
may be applied for Math/
Science requirement.)

Social Sciences 15 sh**Humanities** 15 sh

(6 sh of foreign language
requirements may be applied.) 6

Electives (From Gen. Ed. Area) 6 sh**OTHER DEGREE REQUIREMENTS**

Foreign Language (Proficiency at
2nd yr. level. If waived, to be
replaced by free electives.) 12 sh

MATHEMATICS 33 sh

Calculus I	3
Calculus II	3
Calculus III	3
Calculus IV	3
Abstract Algebra I	3
Linear Algebra	3
Mathematics Electives	15

(Electives must be chosen from 30 or 40
level courses of which at least three must
be at the 40 level. MA 90 may be sub-
stituted for a 40 level course.)

FREE ELECTIVES 29 sh

Bachelor of Science in Medical Technology

(128 semester hours—18 semester hours in Biology,
23 semester hours in Chemistry minimum)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh

Social Sciences 15 sh

Humanities 15 sh

Electives (From Gen. Ed. Area) 6 sh

MEDICAL TECHNOLOGY

* General Biology I	3
Genetics	3
General Microbiology	3
Human Biology	3
* General Chemistry I & II	4/4
Organic Chemistry I & II	4/4
Analytic Chemistry	4
Biochemistry	3
* Functions	3
Mathematics elective	3
Introductory Physics I & II	3/3

PROFESSIONAL

** Intro. to Medical Technology	1
** Clinical Chemistry	8
** Clinical Microbiology	8
** Clinical Hematology	8
** Immunohematology	8

RECOMMENDED ELECTIVES 9 sh

General Zoology	3
Parasitology	3
Developmental Biology	3
General Botany	3
Laboratory Techniques	3
Cell Biology	3

* Satisfies either General Education
or major requirements.

Note: In order to receive a B.S. degree,
Medical Technology students must complete
practicum at an affiliated hospital.

** Taken during practicum

Bachelor of Science in Nursing

(127 semester hours—67 semester hours in Nursing)

GENERAL EDUCATION (57 sh minimum)

English Composition I & II	3/3
Speech	3
State & Federal Const. Prof.	

Math/Science 12-16 sh

Anatomy & Physiology I & II	3/3
General Chemistry I & II	3/3

Social Sciences 15 sh

General Psychology	3
Introduction to Sociology	3
Human Growth & Development	3

Humanities 15 sh

Electives (From Gen. Ed. Area) 6 sh

OTHER DEGREE REQUIREMENTS

Survey of Micro-organisms	3
---------------------------	---

NURSING 67 sh

Introduction to Nursing I	1
Introduction to Nursing II	1
Foundations of Nursing I	4
Foundations of Nursing II	4
Found. of Interpersonal Rel.	2
Intro. to Pharmacology	2
Nutrition	3
Medical-Surgical Nursing	12
Maternal-Child Health Nurs.	12
Principles of Management	3
Adv. Med.-Surg. Nursing	9
Community Health Nursing	6
Psychiatric-Mental Health Nurs.	6
Nursing Seminar	2



Physics, Bachelor of Arts

(123 semester hours—41 semester hours in Physics)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science	12-16 sh
Calculus I & II	3/3

Social Sciences	15 sh
------------------------	--------------

Humanities (6 sh of foreign lang. requirements may be applied)	15 sh
---	--------------

Electives (From Gen. Ed. Area)	4-6 sh
---------------------------------------	---------------

OTHER DEGREE REQUIREMENTS

Foreign Language	6-12 sh
(Proficiency at 2nd yr. level. If waived, to be replaced by free electives.)	

FREE ELECTIVES	21 sh
-----------------------	--------------

PHYSICS

General Physics I & II	4/4	41 sh
Modern Physics	3	
Math Methods in Physics I	3	
Math Methods in Physics II	3	
Math Methods in Physics III	3	
Electronic Physics I & II	4/4	
Intermediate Mechanics	3	
Vibrations and Waves	3	
Seminar in Physics	1	
Advance Lab in Physics	3	

1 additional course in Physics from elective list below	3
---	---

TOTAL 41**Elective** (Choose 1):

Quantum Mechanics
Statistical Mech. & Thermodynamics
Atomic and Nuclear
Solid State
Electronic Physics III
Electricity and Magnetism

Physics, Bachelor of Science

(123 semester hours—44 semester hours in Physics)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science	12-16 sh
Calculus I & II	3/3
General Chem.	4/4

Social Science	15 sh
-----------------------	--------------

Humanities	15 sh
-------------------	--------------

Electives from General Education	4-6
----------------------------------	-----

Free electives	21 sh
-----------------------	--------------

PHYSICS

General Physics I, II	8
Modern Physics	3
Math Meth. in Physics I	3
Math Meth. in Physics II	3
Math Meth. in Physics III	3
Electronic Physics I, II	8
Intermediate Mechanics	3
Vibrations & Waves	3
Seminar in Physics	1
Advanced Lab	3
2 additional courses in Physics (from elective list below)	6

Total 44**Electives** (Choose 2)

Quantum Mechanics
Atomic and Nuclear
Statistical Mech. and Thermodynamics
Solid State
Electricity and Magnetism
Electronic Physics III

Physics, Bachelor of Science in Education, Secondary

(121 semester hours—38 semester hours in Physics)

GENERAL EDUCATION (60 sh minimum)

English Composition I & II	3/3
Speech	3
Health and Fitness	3
State & Federal Const. Prof.	

Math/Science 12-16 sh

Calculus I & II	3/3
-----------------	-----

Social Sciences 15 sh

* General Psychology	3
----------------------	---

Humanities 15 sh**Electives (From Gen. Ed.) 4-6 sh****BEHAVIORAL SCIENCES**

* Adolescent Psychology	3
* Tests & Measurements	3

* May be applied to the
Social Sciences category.

PROFESSIONAL

Successful Practices in Secondary Education	3
Design, Preparation, and Production of Instructional Materials	3

PHYSICS

General Physics I & II	4/4
Modern Physics	3
Math Methods in Physics I	3
Math Methods in Physics II	3
Electronic Physics I	4
Electronic Physics II	4
Physics for Sec. Teachers	3
Seminar in Physics	1
1 additional course from elective list below	3

TOTAL 32**ELECTIVE (Choose 1):**

Math Methods in Physics III
Intermediate Mechanics
Vibrations and Waves
Quantum Mechanics
Statistical Mech. & Thermodynamics
Atomic and Nuclear
Solid State
Advanced Lab
Electronic Physics III

21 sh

Physics Methods	3
First Aid	cr.
Student Teaching	12



Psychology, Bachelor of Arts or Science

(120+ semester hours—36 semester hours in Psychology)

GENERAL EDUCATION*	60 sh	FREE ELECTIVES	24 sh
English Composition I & II			
Speech		PSYCHOLOGY†	36 sh
Health and Fitness			
State & Federal Const. Prof.			

Students wishing to major in Psychology and specialize in Sociology should plan to take 36 credit hours in Psychology and select 15 credit hours, including Introductory Sociology, from the following list of courses:

Introductory Sociology	Social Problems
Introduction to Anthropology	Sociology of the Family
Community Analysis	Sociology of Religion
Criminology	Urban Sociology
Social Psychology	Independent Study

The requirements are the 6 credit hour Introductory Psychology course, or General Psychology. (When this course has been taken prior to the decision to major in Psychology, students planning the major should take Introductory Psychology.) The remainder of the 36 credit hours in Psychology courses, along with the appropriate prerequisites, are to be chosen in conjunction with the student's advisor who will offer guidelines and recommend courses in view of potential employment, graduate work and general interest.

†It is strongly recommended that students planning graduate study in Psychology take the following courses: Abnormal Psychology, Psychology of Personality, Statistics, Experimental Psychology, Physiological Psychology, Psychology of Learning, Child Psychology, Adolescent Psychology.

°Foreign Language Requirements for the Bachelor of Arts are as follows: 12 sh of foreign language. (Proficiency at 2nd yr. level. If waived, to be replaced by free electives.) (6 sh of Foreign Language Requirements may be applied to Humanities under the General Education requirements.)

Special Education, Bachelor of Science in Education

(120+ semester hours—39 semester hours in Special Education including Student Teaching)

GENERAL EDUCATION (60 sh minimum)		SPECIAL EDUCATION	33 sh
English Composition I & II	3/3	N/N of Excep. Children I & II	3/3
Speech	3	* Curriculum for Child with special needs	3
Health and Fitness	3	* Methods Teaching in S.E.	3
State & Federal Const. Prof.		* Reading Methods in S.E.	3
Math/Science	12-16 sh	* Ident. Diag. of Learning Disabilities	3
Social Sciences	15 sh	Math in S.E.	3
Humanities	15 sh	* Student Teaching	12
BEHAVIORAL SCIENCES	6 sh	Professional	
General Psychology	3	See Course Description, SE 70 re: Integrated Professional Program	
Child Psychology	3		
**Abnormal Psychology	3	Electives (Choose 2)	6 sh
**Psych. of Personality	3	Curr. for Trainables	3
**Speech Pathology	3	Sec. Prog. M.R.	3
**Tests & Measurements	3	Prog. Dev. of Learn. Disab.	3
**Principles of Guidance	3	Early Learn. Exper.	3
		N/N of Multiple Handicapped	3
		Community Resources	3
		Problems in Language Arts	3

* Must be taken as a block-prerequisite is N/N of Exceptional Children.

* * Are also Professional Courses.

Sociology, Bachelor of Arts or Science

(120+ semester hours-36 semester hours in Sociology)

General Education (60 sh minimum)		Humanities*	15 sh
English Composition I & II	3/3		
Speech	3	Electives (From Gen. Ed.Area)	6 sh
Health & Fitness	3		
State & Federal Const.Prof.		Sociology	36 sh
Math/Science	12-16 sh	Intro. to Sociology I & II	3/3
Biology I	3		
Physical Science elective	3		
Social Sciences	15 sh		
Intro. to Sociology I & II	6		
Anthropology I	3		

Remainder of the 36 credit hours in Sociology courses along with the appropriate prerequisites, are to be chosen in conjunction with the student's advisor who will offer guidelines and recommend courses in view of potential employment, graduate work and general interest.

*Foreign Language Requirements for the Bachelor of Arts are as follows: 12 sh of foreign language. (Proficiency at 2nd year level. If waived, to be replaced by free electives.) (6 sh of Foreign Language Requirement may be applied to Humanities under the General Education Requirements)

Course Descriptions

INCLUDING DEPARTMENTAL REQUIREMENTS AND EXPLANATION OF COURSE NUMBERS

- 01-19 First courses in given area of general education series
- 20-29 Second courses in given area of general education series
- 30-79 Elective courses
- 80-89 Professional courses
- 90-99 Independent study and honor courses

Arabic numbers at end of course descriptions represent semester hours and clock hours in that order.

Example

AR 10 Survey of Art Forms 1 3-3

The 3-3 represents 3 semester hours, 3 clock hours. The term semester hour is used to designate one class or equivalent laboratory unit meeting.

ART

AR 10 Survey of Art Forms 1 3-3

Significant art forms in Western Civilization from 1800 to the present.

AR 12 Survey of Art Forms II 3-3

Significant art forms in Western Civilization from the earliest times to the Renaissance.

AR 14 Drawing 3-6

A studio course, emphasis being primarily upon the exploration of line and mass.

AR 16 Issues In Contemporary Art 3-3

Seminar involving discussion and individual research and exploration using current media.

AR 17 Design 3-6

The pictorial elements: line, color, shape and texture as a preparation for the areas of drawing, painting and sculpture.

AR 18 American Art 3-3

Architecture, painting, sculpture and the decorative arts from Colonial times to the present.

AR 19 Renaissance Painting 3-3

Western Painting from 1250 to 1600 with emphasis on standards which culminated to the 20th century.

AR 20 Painting 3-6

An introduction to painting.

AR 22 Sculpture 3-6

Experiments with sculpture media emphasizing understanding of the basic principles of design and form.

AR 24 Advanced Sculpture 3-6

Continuation of AR 22 with a deepening emphasis upon individual problems. Prerequisite: AR 22.

AR 25 Advanced Painting 3-6

A continuation of AR 20 with a deepening emphasis upon individual problems. Prerequisite: AR 20.

AR 27 Pictorial Design 3-6

A studio course in painting with special emphasis upon formal structure. Prerequisite: AR 25.

AR 28 Art in Elementary Education 2-4

Practice of art as well as observation and discussion of the philosophy of art education in the elementary grades.

AR 90 Independent Study in Art 3 hours credit

For selected students, upon approval of both department head and advising instructor.

BEHAVIORAL SCIENCES**Psychology****PY 10 General Psychology 3-3**

The science of human behavior. Scientific method, maturation, motivation, emotions, sensation, learning, personality, and adjustment.

PY 13 Introduction to Psychology I 3-3

A review of psychology as a science. The nervous system, sensory processes, perception, unconscious processes, learning, memory, language, and thought. For the Psychology major.

PY 14 Introduction to Psychology II 3-3

Continuation of PY 13. Motivation, emotion, individual differences, statistical methods, genetics, personality, behaviour disorders, therapy, social and group processes. Prerequisite: PY 13.

PY 15 Introduction to Speech Pathology 3-3

An orientation to speech pathology by identification and referral procedures for primary speech problems; examination and observation of speech therapy procedures. Clinical point of view is stressed. Prerequisite: PY 10 or PY 14.

PY 16 Psychology of Speech and Communication 3-3

This course provides information for judging speech behaviors of self and others. Concepts of speech, language and communication; healthy speaking and listening behaviors; non-verbal communication; animal communication; linguistic and psycholinguistic theory. Prerequisite: PY 10 or PY 14

PY 20 Human Growth and Development 3-3

A study of the physical, physiological, social, and psychological development of the individual—from conception to old age. Prerequisite: PY 10 or PY 14.

PY 21 Child Psychology 3-3

Emphasis on the theories of development, and the application, understanding, and guiding of development in normal children. Prerequisite: PY 10 to PY 14.

PY 22 Advanced Child Psychology 3-3

An expansion and continuation of the major topics in child psychology. Opportunity for individual projects and experiences with children will be provided. Prerequisite: PY 21.

PY 23 Adolescent Psychology 3-3

Adolescence as a cultural phenomenon and as a stage of development; understanding the impact of current trends, physical and sexual development of emerging youth in their search for identity. Prerequisite: PY 10 or PY 14.

PY 30 Psychology of Personality 3-3

Dynamic factors in personality formation are followed through approximate sequences of the life period. Prerequisite: PY 10 or PY 14.

PY 35 Abnormal Psychology 3-3

Normal, neurotic, and psychotic behavior and methods of psychotherapy will be reviewed. Techniques for maintaining optimal psychological health. Prerequisite: PY 10 or PY 14.

PY 40 Psychological Statistics 3-3

Introduction to applied statistics; statistical treatment of data; descriptive statistics; basic inferential statistics up to and including analysis of variance. Prerequisite: PY 10 or PY 14.

PY 41 Experimental Psychology 4-4

The scientific method; experimental designs and laboratory methods in behavioral science, emphasizing laboratory experiments and scientific communication of results. Prerequisite: PY 40 or permission of the instructor.

PY 42 Physiological Psychology 3-3

Relationship between behavior and the structure and function of the organism's nervous system; emphasis on the physiological basis of learning, motivation, emotion, motor activity and perception. Prerequisite: PY 10 or PY 14.

Py 43 Perception 3-3

Principles related to man's awareness of his world. Topics to be considered will include psychophysics, the relationship between motivation and perception, the sensory bases of perception and localization in space. Prerequisite: 15 credits in Psychology.

PY 45 Psychological Testing 3-3

Laboratory course in the theory, administration, and interpretation of group and individual tests used in studying certain behavior characteristics. Prerequisite: PY 40 or PY 75.

PY 48 History and Systems of Psychology 3-3

A consideration of contemporary psychology as seen in its historical perspective. The development of psychological concepts and theories will be traced from their antecedents in philosophy, theology, and the physical sciences. Prerequisites: Junior or Senior standing, 15 credits in Psychology.

PY 50 Psychology of Learning 3-3

Principles and theories of learning; classical conditioning, operant conditioning, verbal learning, acquisition of motor skills. Prerequisite: PY 10 or PY 14.

Py 55 Group Dynamics 3-3

The nature and dynamics of interpersonal relationships, studied in typical group settings such as classrooms, workshops, seminars, and discussions. Prerequisite: PY10 or Py 13 and permission of the instructor.

PY 60 Industrial Psychology 3-3

Psychological principles and techniques used in selection and placement of employees: psychological tests, worker motivation and adjustment, training, morale, accident prevention, job efficiency. Prerequisite: PY 10 or PY 14.

PY 65 Social Psychology 3-3

Psychological constructs and concepts applied to the interaction between human beings. Prerequisite: PY 10 or PY 14.

PY 70 Educational Psychology 3-3

A psychological analysis of the educational process, including learning, motivation, socialization, testing, and cognitive, moral, and language development. Prerequisite: PY 10 or PY 14.

Py 71 Psychology of Classroom Learning 3-3

The principles and theories of learning, as derived by both the laboratory psychologist and the educational researcher, and as related to the classroom. Prerequisite: PY 10 and PY 14.

PY 73 Psycho-Social Problems of Urban Children 3-3

The experience of the inner-city child in relation to housing, schools, and teachers; emergence of "the alternative school" and other attempts to help children. Students will participate in a two-hour weekly seminar and work for at least five hours in the community. Prerequisite: PY 10 or PY 14.

PY 75 Tests and Measurements 3-3

A study of basic statistical concepts and techniques in measurement, with application to teacher-made tests and standardized tests used in education and psychology. Prerequisite: PY 10 or PY 14.

PY 77 Principles of Guidance 3-3

Introductory course for those interested in developing their helping-relationship skills. Guidance services, counseling, special methods, specialized testing and materials. Prerequisite: PY 10 or PY 14.

PY 85 Fundamentals of Interviewing and Report Writing 3-3

This course will provide students with some basic skills needed in the Human Services, primarily interviewing and report writing techniques. The components of interviewing and report writing; carrying out interviews; analyzing and writing up interviews. Prerequisites: HS 10, PY 23, and permission of the instructor.

PY 90 Independent Study 3-3

Independent Study is to be offered primarily to outstanding students of Junior or Senior standing and requires approval of the professor and of the Chairman of the Behavioral Sciences department. Independent Study may take the form of: Special advanced reading programs; problem identification and research; assistantships; acquisition of professional skills. Under no circumstances will independent study be substituted for regularly scheduled courses.

PY 95 Seminar In Psychology 3-3

Seminar dealing with contemporary problems in psychology. Specific topics will vary from semester to semester, depending upon the instructor. Prerequisite: Variable—permission of the instructor.

Human Services**HS 10 Introduction to Human Services 3-3**

A survey of the fields (psychology, social work, probation, rehabilitation), agencies (welfare, correction, family services, mental health, nursing homes), and career opportunities in the Human Services. Prerequisites: PY 10 or PY 14 and SO 10 plus permission of the instructor.

HS 80 and 81 Field Work in the Behavioral Sciences

Students work one day per week (or the equivalent) throughout the school year, beginning in September, in an agency under the supervision of an agency staff member. In addition to the field experience, there are also class meetings devoted to skill development and a sharing of field experiences. Students should try to plan their programs to have one day a week, or 2 large blocks of time, free of classes, both Fall and Spring semesters. Prerequisites: Introduction to Human Services; Abnormal Psychology; Permission of Instructor

BEHAVIORAL SCIENCES INTERDEPARTMENTAL**EP 10 Behavioral Science in Early Childhood I 4-5**

Principles, patterns, and theories of human development and learning; principles and techniques of naturalistic and standardized child study. Observation, recording, synthesis, and interpretation of child behavior within a practicum setting. Prerequisite: PY 10 or PY 14.

EP 11 Behavioral Science in Early Childhood II 4-5

A continuation of EP 10.

BEHAVIORAL SCIENCES**Sociology****SO 10 Introduction to Sociology 3-3**

Structure and process in the organization of groups, with consideration of development, maintenance and change variables.

So 44 Urban Sociology 3-3

The structure and function of cities in history and modern life.

So 45 Community Analysis 3-3

The community as a social system. Field Study: observation and analysis of local communities.

So 52 Introduction to Social Services 3-3

Concepts and methods in social work. Practical training experience through community agency setting. Prerequisites: PY 10 or Py 14 and SO 10.

So 62 Sociology of Religion

Structure and function of religious organization, beliefs, and practices. Current issues in American religion.

So 63 Sociology of the Family 3-3

Structure and function of the family; trends and practical solutions to problems in family living.

So 70 Social Problems 3-3

Consideration of major social problem areas: energy, family, government, poverty, health, etc. from the view point of gathering data for possible approaches.

So 75 Criminology 3-3

A survey of the field of criminology including such topics as professional crime, organized crime, homicide, sex offenses, white collar crime, property offenses, juvenile delinquency, and the administration of criminal justice. Prerequisite: So 10

So 85 Introduction to Anthropology 3-3

The study of cultures: Technology, economics, kinship, political structures, languages, and religion.

So 90 Independent Study 3-3

Prerequisite: Approval of both advising instructor and department man.

BIOLOGY**BI 10 Introductory Biology I 3-4**

A general education course emphasizing those aspects of biology that are critical to an understanding of man in the biosphere. This course is a prerequisite to all biology courses higher than BI 13, with the exception of BI 27.

BI 11 Introductory Biology II 3-4

Continuation of BI 10. Optional for Biology majors.

BI 12 Anatomy and Physiology I 3-4

Structure and physiological mechanisms at the cellular, tissue, and organ level.

BI 13 Anatomy and Physiology II 3-4

Continuation of BI 12.

BI 20 General Zoology 3-4

The fundamental principles underlying animal life. Prerequisite: BI 10 and 11 or permission of instructor.

BI 21 General Botany 3-4

Emphasis on representative thallophytes, bryophytes and vascular plants, their biology, evolutionary development, and importance to man.

BI 22 Plant Physiology

The function of plant cells, tissues, and other structures. Prerequisite: BI 21, CH 20.

BI 23 Introductory Ecology (first semester) 3-4

Basic ecological principles, field work and laboratories emphasize local communities and provide practice in the use of taxonomic keys.

BI 24 Advanced Ecology (second semester) 3-4

Emphasis on quantitative study of phenomena such as population relationships, productivity, energetics and community structure. Prerequisite: BI 23.

BI 25 Laboratory Techniques in Biology 3-4

Techniques, procedures, demonstrations, experiments, and other activities performed in biology laboratories. Prerequisite: BI 20 and 21. For non-majors: BI 11 or permission of instructor.

BI 26 Conservation of Natural Resources (first semester) 3-4

The maintenance of environmental quality and productivity. Field and laboratory work provides outdoor-oriented conservation material.

BI 27 Survey of Microorganisms 3-4

Principles and practical aspects of microbiology. Prerequisites: BI 12, CH 11 or permission of instructor.

BI 28 Genetics 3-4

Principles of heredity in animals, plants and microorganisms. Laboratory involves breeding experiments.

BI 29 Marine Biology 3-3

The physical, chemical, and biological factors in the marine environment. Field trips.

BI 30 Parasitology 3-4

The morphology of representative groups of parasitic protozoa, helminths, and arthropods, and their functional relationships to the animal and human hosts. Prerequisite: BI 20; upper-class status.

BI 31 Ornithology (second semester) 3-4

Introduction to avian biology.

BI 32 History of Biology 3-3

Origins, development and present status of Biology. Two hours lecture and one hour discussion.

BI 34 Limnology 3-4

A study of fresh waters and their inhabitants, including all living organisms found in fresh water and their ecological relationships as determined by biological, physical, and chemical factors.

BI 40 Developmental Biology 3-4

Cellular morphogenesis, metabolism, differentiation. Emphasis on tissue interaction and physiological and biochemical mechanisms. Prerequisite: BI 20 and/or BI 21.

BI 41 Biochemistry 3-4

Study of the chemical basis of biological organization. Prerequisite: CH 20.

BI 42 Human Biology 3-4

The structure and function of the human organism. Prerequisite: CH 20.

BI 43 Cell Biology 3-4

Physiology, organization, distribution and function of cellular inclusions. Prerequisite: CH 20.

BI 44 General Microbiology 3-4

The structure, function, development, physiology, classification and identification of microorganisms. Prerequisite: CH 20.

BI 88 Biology Methods 3-3

Philosophy and methods of modern science teaching (required of all Biology education majors). Not counted towards the required 31 hours in Biology. Prerequisite: IM 24.

BI 90 Independent Research 1 to 3 hours credit

Laboratory research under guidance of the Biology staff. Prerequisite: Permission of the instructor.

CHEMISTRY**CH 10 General Chemistry for Nurses 3-4**

One semester fundamental course for non-degree nurses.

CH 11 General Chemistry I 4-5

The fundamental laws and theories of chemistry such as atomic structure, the periodic table, electrochemistry, descriptive inorganic chemistry, the gas laws, solutions, and chemical binding. Chemical calculations are emphasized.

CH 12 General Chemistry II 4-5

Continuation of (and prerequisite): CH 11 or the equivalent.

CH 13 Chemistry I 3-4

Fundamentals of chemistry for non-science majors.

CH 14 Chemistry II 3-4

Continuation of (and prerequisite): CH 13 or the equivalent.

Ch 20, 21, 22, 23 Organic Chemistry I and II

CH 20, 21 4-6 each CH22, 23 5-9 each

Properties of organic compounds are discussed in terms of their molecular structures and reaction mechanisms. Recommended for chemistry majors (additional laboratory), and/or others contemplating graduate study and for those who feel the need for a solid theoretical foundation. Prerequisites for CH 20 and CH 22: CH 11 and 12. Prerequisites for CH 21 and 23: a grade of 2.0 or better in Organic Chemistry I.

CH 24, 25 Introduction to Organic Chemistry I and II 4-5 each

A survey of the major classes of organic compounds—their chemical and physical properties. Reduced emphasis on theoretical foundations permits inclusion of topics in natural products chemistry and bio-organic application. Prerequisites: CH 11 and 12.

CH 30 Quantitative Analysis 4-6

Emphasis on theory and application of Quantitative Analysis. The lectures stress chemical equilibrium, solubility product, complexometric formation, oxidation-reduction, and stoichiometric calculations. Prerequisite: CH 11 and 12 or the equivalent.

CH 32 Physical Chemistry I 4-5

The underlying principles of chemistry from a physical chemistry standpoint. Kinetic theory, theories of the structure of matter, theory of electrolytic solutions, electrochemistry, thermodynamics, kinetics. Prerequisite: CH 30 or the equivalent.

CH 35 Instrumental Analysis 3-5

Essentially a laboratory course in Instrumental Analysis including one hour lecture per week. Laboratory experiments include spectrophotometric, conductometric, potentiometric, and chromatographic analysis. Prerequisite: CH 32 or the equivalent.

CH 36 Advanced Inorganic Chemistry 3-3

Valency theories, acid-base theories, reactions in non-aqueous solvents, complexation and chelation, physical measurements. Prerequisite: CH 32 and 33 or the equivalent.

CH 40 Natural Products Chemistry 3-6

Isolation, purification, and identification of pure compounds from a variety of naturally occurring substances. Special techniques will be introduced whenever feasible. Six hours of laboratory. Prerequisites: CH 20 and 21.

CH 41 Polymer Chemistry 3-6

An introduction to the synthesis and properties of macromolecules which also serves as an application of chemical principles to this interesting and important group of materials. Two hours of lecture and one four-hour laboratory period. Prerequisites: CH 20 and 21 or the equivalent.

CH 42 Qualitative Organic Analysis 3-7

Chemical and spectral methods are used to establish the structure and identity of single compounds and mixtures. One lecture hour and six hours of laboratory. Prerequisites: CH 20 and 21.

CH 43 Radiation Chemistry 3-3

Fundamentals of radiation chemistry, including radioactivity, atomic nuclei, nuclear reactions, activation analysis, reactors, and radiation detection and measurement, with emphasis on the use of radioactive materials in chemical applications. Prerequisites: CH 30, PH 14.

CH 88 Chemistry Methods 3-3

Methods of teaching chemistry at the secondary level. Includes a survey of modern secondary science curriculum. Required of all Chemistry education majors. Prerequisite: IM 24.

CH 90 Independent Study in Chemistry 3-6

Laboratory research under guidance of the Chemistry staff. Prerequisite: Permission of the instructor.

COMPUTER SCIENCE**CS 10 Computer Programming 3-3**

This course is a general course in Computer Programming and will use a popular programming language such as BASIC as the basis for studies and activities with flowcharts, coding, program execution and debugging and an introduction to computer theory and systems. May be used for Math credit.

CS 15 Introduction to Computers I 3-3

Provides a broad foundation for the study of computers. Topics include: number system theory, computer character coding and arithmetic and a brief introduction to computer hardware design.

CS 16 Introduction to Computers II 3-3

Topics include: Computer Programming and programming languages. Basic assembly languages and an introduction to FORTRAN and COBOL. Prerequisite: CS 15.

CS 20 Numerical Methods and Computers I 3-3

Assumes knowledge of FORTRAN and/or FOCAL. Roots of equations, methods of numerical integration, ordinary differential equations, operations with matrices, curve fitting. Prerequisite: Two semesters of Calculus.

CS 21 Numerical Methods and Computers II 3-3

Fourier series, Tchebychev polynomials, difference methods, interpolation, partial differential equations. Prerequisite: CS 20.

CS 25 Programming I (FORTRAN) 3-3

The major portion of time will be spent learning and using the problem orientated language, FORTRAN. Course work includes: flow charting, coding, debugging, execution and documentation. Prerequisite: CS 16.

CS 26 Programming II (COBOL) 3-3

The major portion of time will be spent learning and using the programming language, COBOL. Course work includes: flow charting, coding, debugging, executing and documenting COBOL programs. Prerequisite: CS 16.

CS 27 Programming III 3-3

This course provides an introduction to currently used programming languages such as: PL/1, APL, SIMULA, ALGOL, JOVIAL, APT and others. Prerequisite: CS 16.

CS 30 Information Systems I 3-3

Topics include: an introduction to systems analysis including problem definition, form and report design, elementary sequential file structuring and data access techniques. Prerequisite: CS 26.

CS 32 Systems Programming I 3-3

The organization and software components of modern operating systems including: batch processing systems, I/O systems, file organization, accessing and management. Prerequisite: CS 25.

CS 34 Automation Techniques 3-3

Techniques for adaption of "on-line" and "off-line" computers to production type machines and control systems. Prerequisite: CS 16.

CS 36 Analog Computer Techniques 3-3

Programming applications and advanced techniques of analog computation including: magnitude and time sharing, scaling, non-linear elements and iterative solutions. Prerequisite: CS 16.

CS 40 Information Systems II 3-3

Advanced file structure and telecommunication systems including: tree structures, direct and indirect sequential file access techniques and display communication. Prerequisite: CS 30.

CS 42 Systems Programming II 3-3

The methods and techniques used in the design and implementation of interpreters and compilers. Prerequisite: CS 32.

CS 46 Analog Hybrid Computer Simulation

The use of Analog and hybrid computers as an engineering tool for systems design and evaluation. Prerequisite: CS 36.

CS 48 Computer Organization 3-3

Systems and subsystems of the basic computer operation and the role of each computer operation.

CS 50 Programming Practicum 3-3

Advanced programming with in depth study in a special area of interest. Prerequisite: Permission of Instructor.

ECONOMICS

EC 10 Principles of Economics: Macro-economics

A study of the theory of employment, income, and growth. Stabilization policy and current problems in American capitalism are emphasized.

EC 12 Principles of Economics: Micro-economics 3-3

A study of the theory of the business firm. Efficiency in the allocation of resources is examined under conditions of pure competition, pure monopoly, monopolistic competition, and oligopoly. Prerequisite: EC 10.

EC 14 Money and Banking

A study of the role of money, credit, and banking in the American economy. Special emphasis is placed on the applicability of monetary policy to the problems of economic stability.

EC 16 Public Finance

A study of the principles of governmental expenditures and revenues. Attention is also devoted to the problems of public debt, fiscal policy, and inter-governmental fiscal relations, with particular reference to the United States.



EARLY CHILDHOOD, ELEMENTARY, AND SECONDARY EDUCATION**EARLY CHILDHOOD EDUCATION****ED 10 Early Childhood Foundations I 4-5**

An introduction to aspects of the early childhood educator's future status such as: membership in a social institution, a multi-level organization, a profession, and the intellectual community. Required of Early Childhood Education Majors.

ED 20 Early Childhood Foundations II 4-5

Designed for those preparing to teach young children. Presents the students with a brief orientation to the developmental philosophy and goals of early childhood education. Presents methods and activities. Required of Early Childhood Education Majors.

EP 10 Behavioral Science in Early Childhood I 4-5

Study of principles, patterns, and theories of human development and learning as well as principles and techniques of naturalistic and standardized child study. Observation, recording, synthesis, and interpretation of the behavior of young children will occur within a practicum setting. Case studies will be written. Required of early childhood education majors. Prerequisite: General Psychology or Introduction to Psychology. Required for EDP II

EP 11 Behavioral Science in Early Childhood II 4-5

Continuation of EP 10.

ED 21 Reading in Early Childhood 4-5

Study of the techniques and procedures necessary for teaching reading in the primary grades. The practicum for the application of techniques is an integral part of the course.

ED 22 Language Arts in Early Childhood 4-5

The four components of verbal communication—listening, speaking, reading, writing; current materials and programs for developing language; use of literature in language and concept development; practicum for application of learning.

ED 24 Fine Arts in Early Childhood 4-5

The study of the integration of art, music and movement for young children using an interdisciplinary approach. Investigation of the objectives, methods and materials in the fine arts areas.

ED 31 Social Studies, Math and Science in Early Childhood 4-5

Emphasis is placed on the development and demonstration of instructional Techniques and Materials in Science, Math and Social Studies. Related classroom problems and expectations and philosophies of instruction are discussed.

ED 33 Case Studies of Young Children 3-3

Behavior and personalities of children. Student undertakes systematic studies involving gathering, interpreting data. Elective.

ED 30 Methods and Materials of Early Childhood Education 3-3

Physical, social, emotional development of children ages 3-8. Methods and activities used, evaluation of teaching techniques. Elective.

ED 40 Improvement of Reading 3-3

The recognition and correction of reading problems in the classroom. Each student is assigned a child to test and tutor. Practicum included in class time. Prerequisite: ED 63.

ED 41 Language Arts in the Elementary School 3-3

The four aspects of a total program in Language Arts, listening, speaking, writing and creativity, with a practicum of pre-professional experience.

ED 60 Principles and Practices in Education 3-3

The development of an understanding of the theoretical and practical demands of the teaching process is an integral part of the course. Required of Elementary Education Majors.

ED 61 Successful Practices in Secondary Education 3-3

Combination of theory and practice in a school setting. Required of Secondary Education Majors.

ED 63 Reading in the Elementary School 3-3

This course provides a background in the principles and techniques of teaching reading in the elementary grades. Emphasis is placed upon the organization of the reading program, instructional materials, procedures, and current practices in the teaching of reading. Practicum is included. Prerequisite: PY 21.

ED 64 Reading in the Secondary School 3-3

Investigation of the reading process. Discussion of current evaluative methods. Analysis of the reading skills and procedures for development. Required of Secondary English Majors. Prerequisites: PY 23, ED 60.

ED 65 Foundations of Education 3-3

A study of the historical and philosophical development important to modern-day education. Required of Elementary Education Majors.

ED 68 Individualized Reading 3-3

Philosophy, techniques and materials for developing an individualized Reading Program. Practicum included in class time. Prerequisite: ED 63.

ED 84 Student Teaching in Early Childhood Education 12-25

Each student is required to have a full semester of student teaching consisting of two experiences, one in a kindergarten and a second at the primary level.

ED 86 Student Teaching in Elementary Education 12-25

Each student is required to have a full semester of student teaching consisting of two experiences at the elementary education level.

ED 87 Student Teaching in the Secondary School 12-25

Students are assigned to cooperating schools for a semester of student teaching.

ED 88 Introduction to Learning Disabilities 3-3

A study of some of the causes of school learning disabilities at the Elementary level. Specific techniques and remediation exercises will be discussed. Prerequisite: ED 86 or permission of instructor.

ED 90 Independent Study in Elementary Education 3 sem. hrs.

Provides the student with the opportunity of research with staff guidance in a problem in elementary education. Limited to juniors and seniors. Prerequisite: Permission of department.

ENGLISH**EN 10 English Composition I 3-3**

Practice, both oral and written, in expressing ideas with precision, clarity, and economy. The research essay. Critical reading.

EN 12 English Composition II 3-3

Essentially a continuation of EN 10, but more advanced. Logic and the vocabulary of criticism. Prerequisite: a passing grade in EN 10. Prerequisite for all English electives: EN 10, EN 12.

Electives**EN 20 American Literature I 3-3**

Representative American writers from Colonial days through the Civil War.

EN 21 American Literature II 3-3

Representative American writers since the Civil War.

EN 22 English Literature I 3-3

British writers from the Old English period through the early Romantic writers of the late 18th century.

EN 23 English Literature II 3-3

British writers since the Romantic movement.

EN 24 World Literature I 3-3

European literary masterpieces from the beginning through the middle of the 17th century.

EN 25 World Literature II 3-3

European literary masterpieces from the mid-17th century to the present.

EN 30 World Drama 3-3

Significant and representative plays from the beginning to the modern period.

EN 31 Modern Drama 3-3

The works of such playwrights as Ibsen, Chekhov, Sartre, Brecht, Ionesco.

EN 32 The World Novel to 1914 3-3

Significant novels representing various countries and periods as well as stages in the development of this literary form.

EN 33 The World Novel Since 1914 3-3

Modern novels are studied both aesthetically and as human documents.

EN 34 The Short Story 3-3

Significant stories of some of the great writers of the Western world, showing the evolution of the short story form.

EN 35 Modern Poetry 3-3

Representative modern poetry with the emphasis on American and English poets.

EN 36 Literary Criticism 3-3

Critical theory and practice from Aristotle through the 20th century.

EN 40 The Middle Ages 3-3

Literary forms that made their first appearance after the emergence of Middle English.

EN 41 Chaucer and His World 3-3

Emphasis on the Canterbury Tales and their Medieval background.

EN 42 Shakespeare I 3-3

Shakespeare's vision of politics, society, and history. Studies in the chronicles of English history and the image of heroism and kingship.

EN 43 Shakespeare II 3-3

Shakespeare's vision of human destiny. Studies in the Comic and the Tragic.

EN 44 Baroque English Literature 3-3

Baroque or metaphysical elements in seventeenth century literature from Donne to Vaughan, including Herbert, Crashaw, Marvell, Browne, Webster, and Middleton.

EN 45 Mythic Poetry of the English Renaissance 3-3

Visions of love and religion in Spenser, Donne, Herbert, and Milton, including *Paradise Lost*.

EN 46 Neoclassical Literature from Jonson to Congreve 3-3

Neoclassical elements in the works of Jonson and his "school" including a close study of Dryden and Restoration drama.

EN 47 Early Eighteenth-Century Literature 3-3

English literature from 1700 through 1745.

EN 48 Late Eighteenth-Century Literature 3-3

English literature from 1745 through 1800

EN 49 Literature of the Romantic Period 3-3

Wordsworth, Coleridge, Byron, Shelley, Keats. Some prose writers such as Scott.

EN 50 The Nineteenth-Century English Novel 3-3

Significant novels demonstrating the changing cultural milieu and varying approaches of the genre during this period.

EN 51 Victorian Prose and Poetry 3-3

Study of major writers from 1832-1890, and their ideas on man's relationship to society in the face of industrialization and scientific progress.

EN 52 Decadence and Transition 3-3

Victorian literary standards collated with modern trends in poetry, prose, and drama.

EN 53 Twentieth-Century Irish Literature 3-3

Synge, Yeats, Joyce, O'Flaherty, O'Connor and O'Faolain, with some attention to minor figures of the so-called Irish Literary Renaissance.

EN 60 American Romanticism 3-3

Major New England romanticists with some emphasis on minor Transcendentalists.

EN 61 American Novel 1890-1945 The evolution from objective realism in Drieser to subjective realism in Faulkner, and the combination of modes in Hemingway, Fitzgerald, West.

EN 62 The American Novel Since 1945 3-3

A close analysis of seven or eight major novels.

EN 63 Major American Writers of the Twentieth Century 3-3

The varied creativity of American writers of fiction, drama, poetry, criticism, and the essay since World War I.

EN 64 The Black Author in the Modern World 3-3

Mainly U.S. writings.

EN 65 Other Trumpets: Literature of the Minorities 3-3

Significant writings by American Indians; Black, Mexican, Puerto Rican, Phillipinos, and Oriental Americans: considered aesthetically and as social and political documents.

EN 70 The Bible as Literature 3-3

A study of the style, narrative techniques, symbols, and historical setting of the Old and New Testament writers.

EN 71 Laughter, Comedy, and Joy 3-3

Studies in literary comedies and theories of comedy from various periods and genres.

EN 72 Novels of Politics and Revolution 3-3

Such novelists as Stendhal, Dostoevski, James, Zola, Conrad and others.

EN 73 Women and Literature 3-3

Emphasis on literature by and about women, including such authors as Ibsen, James, Stein, Woolf, Sexton, Plath and others.

EN 74 Occult in Literature 3-3

Spiritualism, witchcraft, demonology, extrasensory perception and other areas of the occult found in the works of Scott, Walpole, James, Hawthorne, Shakespeare, Wilde and others.

EN 75 Journalism 3-3

Readings in the mass media with individualized writing assignments. Some emphasis on the technical aspects of newspaper work and the methods of New Journalism.

EN 76 Creative Writing 3-3

For outstanding students who have completed EN 10 and 12. Upon approval of instructor.

EN 77 The Cinematic Eye 3-3

An exercises in democratic/personal film-making. Rock-bottom cost, minimally gadgeted cinematography. An aid in teaching film-making. Student supplies his own regular or super-8 mm cine camera and all materials.

EN 80 Children's Literature 3-3

Focusing on a wide range of subjects with criteria for evaluation of books, for related library sources, for book fairs, and for school and classroom library needs.

EN 81 Literature for Young Adults 3-3

Focusing on the needs of the adolescent in junior and senior high school levels, the emphasis is on related reading materials, on music, on the cinema, and on other current fads which influence the teenager on the way to maturity.

EN 82 Rhetoric and the Teaching of Writing 3-3

A study of the problems of teaching of writing at the secondary level. The uses of rhetoric.

EN 83 The Structure and the Nature of Language

The study of language systems and grammatical theories; history of the English language; theories of acquisition; psycholinguistic and sociolinguistic topics.

EN 88 The Teaching of English 3-3

The methodology of English (lesson planning, selection of materials, curriculum development, review of relevant research). Prerequisite: IM 24.

EN 90 Independent Study 3-3

For English majors excelling in scholarship, upon approval of both department head and advising instructor.

FOREIGN LANGUAGES

A placement test is given prior to the beginning of the fall semester and must be taken by students to determine their level of proficiency in a specific language beyond the elementary level.

French**FR 10 French for Beginners I 3-4**

Correct pronunciation, reading ability, and fundamentals of grammar and syntax. French gradually becomes the working classroom and laboratory language.

FR 11 French for Beginners II 3-4

A continuation of FR 10.

FR 20 Intermediate French I 3-4

Conversation and laboratory practice; readings stressing life, customs and culture of France. Prerequisite: Two years of high school French or French 10 and 11 and/or satisfactory score on Placement Test.

FR 21 Intermediate French II 3-4

A continuation of FR 20.

FR 30 French Civilization I 3-3

Development of the French nation as revealed in its history, geography and basic institutions through modern literature. Prerequisites: Placement Test or completion of FR 21 and/or instructor's permission. (Course conducted in French.)

FR 31 French Civilization II 3-3

A continuation of FR 30.

FR 33 French Literature I 3-3

A survey of the main currents of French literature from the Middle Ages through the 18th century. Prerequisite: Placement Test or completion of FR 21 and/or instructor's permission. (Course conducted in French.)

FR 34 French Literature II 3-3

A survey of the main currents of French literature of the 19th and 20th centuries. Prerequisite: Placement Test or completion of FR 21 and/or instructor's permission. (Course conducted in French.)

FR 35 French Conversation and Composition 3-3

For students desiring greater fluency in speech and writing. Recommended for civilization and literature courses and foreign language specialization. Prerequisite: FR 21 or instructor's permission.

FR 88 Methods for Teaching French in the Elementary School 3-3

Techniques and materials for use in elementary school. Prerequisite: Minimum of 12 semester hours beyond beginners' level and permission of instructor.

FR 90 Advanced French Independent Study 3-3

Prerequisites: Minimum of 12 semester hours, 2 grade-average in French, and permission of instructor and department chairman.

German

GR 10 German for Beginners I 3-4

Correct pronunciation, reading ability, and fundamentals of grammar and syntax. German gradually becomes the working classroom and laboratory language.

GR 11 German for Beginners II 3-4

A continuation of GR 10.

GR 20 Intermediate German I 3-4

Conversation and laboratory practice; readings stress the life, customs, and culture of Germany. Prerequisite: Two years of high school German or GR 10 and 11 and/or satisfactory score on Placement Test.

GR 21 Intermediate German II 3-4

Continuation of GR 20.

GR 30 German Civilization I 3-3

History, geography, literature, fine arts from Holy Roman Empire through today. Given in German. Prerequisite: GR 21 and/or Placement Test and/or permission of instructor.

GR 31 German Civilization II 3-3

Continuation of GR 30.

GR 33 German Literature through Goethe 3-3

Representative works up to and including Goethe. Conducted in German. Prerequisite: Placement Test, or completion of GR 21 and/or instructor's permission.

GR 34 German Literature since Goethe 3-3

Continuation of GR 33.

GR 35 German Conversation and Composition 3-3

Prerequisites: Minimum of 12 semester hours. 2 grade-average in German and permission of instructor and department chairman.

Russian**RU 10 Russian for Beginners I 3-4**

Aural-oral approach to pronunciation, reading, fundamentals of grammar and syntax. Russian gradually becomes the working classroom and laboratory language.

RU 11 Russian for Beginners II 3-4

Continuation of RU 10.

RU 20 Intermediate Russian I 3-4

Remedial pronunciation, grammar variety, conversation and laboratory practice. Readings stress U.S.S.R. life, customs, culture. Russian is the working language. Prerequisite: Two years of high school Russian or RU II; satisfactory score on Placement Test and/or instructor's permission.

RU 21 Intermediate Russian II 3-4

Continuation of RU 20.

Spanish**SP 10 Spanish for Beginners I 3-4**

Correct pronunciation, reading ability, and fundamentals of grammar and syntax. Spanish gradually becomes the working classroom and laboratory language.

SP 11 Spanish for Beginners II 3-4

Continuation of SP 10.

SP 20 Intermediate Spanish I 3-4

Conversation and laboratory practice; readings stress life, customs, and culture of Spain and Spanish America. Prerequisite: Two years of high school Spanish or Spanish II and/or satisfactory score on Placement Test.

SP 21 Intermediate Spanish II 3-4

Continuation of SP 20.

SP 30 Spanish Civilization I 3-3

Spanish culture as evidenced in Spain and Spanish America through modern representative literature; conducted in Spanish. Prerequisite: Placement Test or completion of SP II and/or instructor's permission

SP 31 Spanish Civilization II 3-3

Continuation of SP 30.

SP 33 Spanish Literature I 3-3

Conducted in Spanish. A survey of Spanish and Spanish American literature. Prerequisite: Placement Test of completion of SP 21 and/or instructor's permission.

SP 34 Spanish Literature II 3-3

Continuation of SP 33.

SP 35 Spanish Conversation and Composition 3-3

For students desiring greater fluency in speech and writing. Recommended for civilization and literature courses and foreign language specialization. Prerequisite: SP 21 or instructor's permission.

SP 88 Methods for Teaching Spanish in the Elementary School 3-3

Techniques and materials for use in elementary school. Prerequisite: Minimum of 12 semester hours beyond beginners' level and permission of instructor.

GEOGRAPHY**GE 10 Introduction to Geography 3-3**

The interrelationships between the physical and cultural elements of man's environment.

GE 13 Earth, Sea and Air 3-4

Selected topics from the earth sciences. (This course is identical with SC 13 and may be counted as a laboratory science course.)

GE 21 Geology 3-4

An introductory survey of the basic elements of physical and historical geology. Laboratory required. Open to all students.

Physical, Earth, and Environmental Courses**GE 40 Elements of Weather 3-3**

Fundamental principles of weather systems. Emphasis will be on mid-latitude and tropical cyclones, convective phenomena and weather modification.

GE 41 Climatology 3-3

Regional differentiation of the climatic zones of the major land and ocean areas of the world. Special attention will be given to urban climatology and the energy and moisture climatology of the earth. Prerequisite: GE Elements of Weather or permission of the instructor.

GE 42 Geomorphology 3-3

A comprehensive study of land forms and their origins. Prerequisite: GE 21 Geology or permission of the instructor.

GE 43 Oceanography 3-3

A study of the physical and chemical properties of sea water, atmospheric interaction with the sea surface, currents and volume flow, the energy budget of the oceans, and the submarine geology of the ocean basins including a thorough discussion of ocean floor spreading. Prerequisites: 6 hrs. in geography, earth science, or the natural sciences.

GE 44 Urban Geography 3-3

Analysis of the external relationships and internal structure of cities, with emphasis on the spatial attributes of contemporary urban qualities and problems in America. Classroom activities are supplemented by applied studies in the greater Fitchburg-Leominster area. Prerequisite: 3 hrs. of geography or permission of the instructor.

GE 45 Map and Aerial Photograph Interpretation 3-3

Techniques in the use of maps and aerial photos as applied to environmental perception and spatial analysis.

GE 30 Economic Geography 3-3

An analysis of basic geographic factors involved in the economic activities of man. Prerequisite: GE 10.

GE 31 Political Geography 3-3

Dependent and independent political units, boundary disputes, strategic areas, buffer zones, and the function of international organizations.

GE 34 Systematic Concepts of Developing Nations 3-3

Investigation and analysis of the increasing relevance of the world's area commonly referred to as "developing." A systematic approach is used in order to attain an understanding of the physical and anthropogeographical makeup of the area under investigation. Prerequisite: GE 30 Economic Geography.

GE 47 Geographic Perspectives on Conservation 3-3

An analysis of natural resources problems arising from changes in technology, population pressure, and concern with the quality of environment. Prerequisite: GE 10.

GE 48 Cartography 3-3

Techniques of presenting data via mapping and field survey. Prerequisite: 6 hrs. of geography or permission of the instructor.

GE 88 Special Methods in Teaching Geography 3-3

Lesson planning, selection of materials, curriculum development, review of relevant research. Prerequisite: IM 24.

GE 90 Independent Study in Geography

Provides exceptional students the opportunity of research with faculty guidance in a subject or problems of geographic significance. Prerequisite: 12 hrs. of geography and permission of instructor. Hours and credit by arrangement.

U.S. and Foreign Area Studies

Regional and systematic analysis based upon geographic elements influencing domestic evolution and international relations. Prerequisite: GE 10.

GE 32 U.S. and Canada 3-3**GE 33 Latin America 3-3****GE 35 Europe 3-3**

GE 36	Asia	3-3
GE 38	Africa	3-3
GE 39	Oceania	3-3

HISTORY

Introductory Courses

HI 10a The Renaissance to the Napoleonic Era 3-3

The evolution of modern European ideas and institutions. Political events, selected biographies, topics in cultural history, and economic and social changes.

HI 10b English and American Political Liberties 3-3

Emphasis on the development of political ideas and institutions from Queen Elizabeth I to the American Constitution. Class reading, role playing, discussion.

HI 12 The Nineteenth and Twentieth Centuries 3-3

Political developments, ideologies such as socialism, and nationalism, the impact of science and technology, and the changing relationship of Europe to Africa and Asia.

HI 12b Social Change in Nineteenth and Twentieth Century Europe 3-3

Surveys nineteenth and twentieth century European society emphasizing changes in everyday life of urban populations. Topics include the family, education, work in factories, changes in popular customs and morals.

HI 13 Medieval Europe 3-3

Major characteristics and institutions of medieval civilization. Within a chronological framework of political events, attention is given to topics in art, literature, philosophy, and religion.

HI 14,15 British History 3-3 each semester

The first semester covers the development of English government and culture from the earliest times to the reign of Queen Elizabeth I. The second semester covers from 1603 to the present with emphasis on parliamentary government, the industrial and agricultural revolutions, the evolution of the British Empire and Commonwealth, and the position of Britain today.

HI 16, 17 An introduction to the Far East 3-3 each semester

East Asian civilization as seen through the political systems, art, thought, and literature. The second semester will emphasize the balance of modernization and traditional values in China and Japan.

HI 21, 22 United States History I and II 3-3 each semester

A survey of United States History beginning with colonial times and continuing through the era of Reconstruction following the Civil War the first semester. The second semester covers from Reconstruction to the present.

HI 30 American Colonial History 3-3

Exploration, settlement patterns, imperial system, social structure, rise of representative government in America, and the 18th-century wars for empires.

HI 31 U.S. Westward Movement 3-3

The movement as a social process and the impact of the West on American development.

HI 32 The American Civil War and Reconstruction 1850-1865 3-3

Politics, slavery, and Lincoln's rise to power; political military and diplomatic aspects of the war; failure of reconstruction.

HI 34 The United States in the Twentieth Century II 3-3

A continuation of HI 33 from the New Deal to the present.

HI 18 History of Mexico, Central America and the Caribbean 3-3

Both HI 18 and 19 survey pre-Columbian and colonial backgrounds, the clash and fusion of cultures, and the evolution of today's Latin American civilizations as they relate to specific geographical areas.

HI 36 United States and Industrial History I 3-3

The industrialization and urbanization of the United States from colonial times to 1870.

HI 37 United States Industrial History II 3-3

A continuation of HI 36 from 1870 to the present.

HI 38 History of the South 3-3

Slavery, the Confederacy, Reconstruction. Development of the Solid South, the Negro, and Civil Rights from a Southern view.

HI 39 Federalist Era 1789-1828 3-3

Early American nationalism with stress on the first American party system; economic nationalism, and foreign policy declarations. Prerequisite: HI 21.

HI 40 Modern German History 3-3

Germany since ca. 1500 with emphasis on the last two centuries and Germany's role in international politics.

HI 41 The Frontier in American History 3-3

The Frontier studied as a historical, social, economic, and psychological process to determine its impact on American development.

HI 42 The Economic History of the United States 3-3

Agricultural, financial, commercial, and technological development of the United States from colonial times to the present.

HI 43 U.S. Foreign Relations: The First Hundred Years 3-3

Diplomacy of the Revolution, foreign relations of the new nation, the Monroe Doctrine and problems of boundaries and expansion, the Civil War and after to about 1890.

HI 44 The U.S. in World Affairs: 1898 to the Present 3-3

The age of imperialism, World War I, the era of "isolation", origins of World War II, American involvement and wartime diplomacy, breakdown of East-West relations, the Cold War, the Korean and Viet Nam conflicts.

HI 45 American Social and Intellectual History I 3-3
The history of ideas in America from the 17th century.

HI 46 American Social and Intellectual History II 3-3
A continuation of HI 45.

HI 19 History of South America 3-3
See HI 18.

HI 48 Black America 3-3

An investigation of the cultural heritage and historical development of the black man in the United States from his West African origins to the present. Emphasis on understanding of prejudice and race relations.

HI 49 The Republican Era, 1877-1912 3-3

Major movements of the late nineteenth and early twentieth centuries in United States History including Grangerism, Populism, urbanization, trade unionism, socialism, and progressivism.

HI 50 The American Revolution 3-3

The coming of the Revolution, war tactics and strategy, problems of the Confederation period, and the American Constitution.

HI 53 Nineteenth-Century Europe 3-3

Political, social, and cultural trends from the outbreak of the French Revolution to the beginning of World War I.

HI 54 Twentieth-Century Europe 3-3

From the first World War to the present. Cultural, scientific, and social developments as well as domestic and international politics.

HI 55 Tudor and Stuart England 1485-1689 3-3

Henry VII to the Glorious Revolution. The Reformation, the religious settlement under Elizabeth I, Puritanism, overseas exploration, evolution of government.

HI 56 Imperial Russia 3-3

Founding of the Kievan State; the Mongol, Muscovite, and Imperial Periods to the Revolution of 1905

HI 57 The Soviet Union 3-3

The Bolschevik seizure of power; attempts to implement Marxist theory; institutional development of the state, family education, and religion.

HI 60 Imperialism and World Politics 3-3

Relations between Europe and Asia, Africa and Latin America during the periods of expansion, Western dominance, and nationalist uprisings against colonialism.

HI 61 Irish History, 1798-1850 3-3

The Rebellion of 1798 and the Act of Union; O Connell and Catholic emancipation; the rise of Irish nationalism; the great famine of 1845-50

HI 62 Irish History, 1850 to the present 3-3

The Home Rule movement; Parnell and the land league; the Celtic revival; the rebellion of 1916 and the civil war; the Republic of Ireland and Ulster in the twentieth century.

HI 88 Special Methods in Teaching of History 3-3

Special techniques for the teaching of history, and their relationship to the principles of general methods. Prerequisite: IM 24.

HI 90 Independent Study in History

Open to students majoring or specializing in history with the permission of the supervising instructor and the department. Meetings times and credit by arrangement.

INDUSTRIAL ARTS**IA 10 General Shop I 2-4**

Methods and procedures of conducting teaching units in a multiple activity shop. Students plan and participate in units which are typical of those normally carried on in teacher-training assignments.

IA 11 Introduction to Wood 2-4

The making of household accessories. A study of tools, materials, processes, mechanics and design.

IA 12 Introduction to Metals 2-4

Chemical metallurgy of selected metals, the use of precision measuring tools, sheetmetal fabrication, foundry practices, bench processes.

IA 13 Introduction to Typography 2-4

Comparison of printing methods in visual communication. Latin alphabet, typography, design-layout, terminology, point system, inks, plates, presses, papermaking, proofmarks.

IA 14 DC Circuit Fundamentals 2-4

Principles of DC electricity experimentally applied to circuits, devices and wiring problems.

IA 15 Introduction to Power Mechanics 2-4

The study of man's endeavors to harness the forces of nature to meet his demand for power. Students perform experiments and submit reports on their data. The single cylinder engine is also studied in this course.

IA 16 Introduction to Drawing 2-4

Lettering, dimensioning, orthographic projection, symbols, sectioning, isometric and auxiliary views. Problem development and blueprint reading.

IA 17 Introduction to Design 2-4

Through a series of compositional assignments students are introduced to two-dimensional and finally three-dimensional form.

IA 18 Industrial Arts for Special Education 2-4

Rudiments of planning, drawing, and construction for teaching aids and projects. Knowledge of tools, materials and processes.

IA 19 Instructional Material in Elementary Education 2-4

A practical and active approach to reinforcing other curriculum areas through planned experiences with tools, materials, and processes of industry carried on with elementary students at McKay School.

IA 20 General Shop II Individual pieces of small furniture are designed, constructed and finished. Advanced concepts and techniques are taught.

IA 22 Machine Shop Processes 3-6

Metalworking machine tools and processes, as well as arc welding. Design and fabrication of products which involve skill in machining and welding.

IA 23 Graphic Arts Unit Teaching 3-6

Investigation of a significant graphic arts product. Problem-centered group activity leading to unit booklet involving photography, visual aids, bookbinding, printmaking.

IA 24 AC Circuit Fundamentals 3-6

Principles of AC electricity and electromagnetism and their applications in circuitry, motors, transformers and other devices.

IA 25 Internal Combustion Engines 3-6

The study of a common automotive multi-cylinder type engine and the component parts of the drive train to complete the system. Activities include testing, disassembling for study; reassembling and retesting of engines and parts. Prerequisite: IA 15

IA 26 Engineering Drawing 3-6

Continuation of fundamentals in the field of intersection and developments, revolutions, axonometrics, assembly, and detail drawing.

IA 30 Structures 3-6

Basic principles and assumptions of structural design, including drawing and models. Load tests determining reactions, shears, bending moments, stresses.

IA 31 Production Furniture 3-6

Production of a piece of furniture employing jigs, fixtures and suitable mass-production procedures. Appropriate methods of production management.

IA 32 Advanced Machine Shop Processes 3-6

An opportunity to broaden the knowledge and skills needed to successfully plan and fabricate acceptable products utilizing available machines, tools and materials. Oxy-acetylene welding, cutting and brazing will be included in the instructional program. Prerequisite: IA 12 and 22 or equivalent.

IA 33 Offset-Lithography 3-6

Problems of design, pasteups, repros, camera, stripping, platemaking, press operation. History, color, halftones, stock selection, chemistry of ink on paper.

IA 34 Radio Theory and Practice 3-6

Basic electronic principles and their applications in radio circuitry. Construction and testing problems.

IA 35 Flight 3-6

The history and scientific principles of sub-sonic, super-sonic, rocket propulsion and jet engines. Students build models for drag and related phenomena in aeronautics.

IA 36 Descriptive Geometry 3-6

Abstract and practical problems are worked out graphically. The concept of locus.

IA 37 Advanced Design 3-6

Students develop individual design projects and follow through to a completed design module. Prerequisite: IA 17 or equivalent course.

IA 40 Research in Industrial Materials 3-6

A study of selected materials or products and tests applied to determine their properties. Statistical procedures applicable to analyzing acquired data and proper techniques for reporting results of research are included. Opportunity provided for individual interests.

IA 41 Woodworking Technology 3-6

Tool and machine shop maintenance, designing and making teaching aids, and experimentation in wood technology and project development. For skilled woodworkers.

IA 42 Elements of Metallurgy 3-6

A course based upon the science of metals, their properties and how they can be modified to improve usefulness. Alloying, crystallization, allotropic changes, corrosion, hardness testing of common metals subjected to heat treatment are included. Transformation and equilibrium diagrams will be studied.

IA 43 Problems of Service Printing 3-6

Supporting role of graphic arts. Job scheduling, planning, ordering stock, estimating. Heidelberg and Davidson operation. Textbooks, curriculum problems, shop layout.

IA 44 Transistors, FM, Test Equipment 3-6

FM receivers, transistor circuitry, power supplies, test equipment and various electronic devices. Constructional and experimental experiences.

IA 45 Advanced Power 3-6

To research, design and construct a working prototype model in the field of energy control that has been approved by the professor before the semester begins. Prerequisites: IA 15 and IA 25 or approval of Instructor.

IA 46 Graphics 3-6

Graphics as an instrument of analysis and conceptualization provides the graphical representation of data, graphical mathematics, arithmetic, algebra, calculus, empirical equations, functional scales and nomography. Prerequisite: IA 16 and IA 26.

IA 47 Ceramics 3-6

Includes throwing on the wheel. Glazing techniques. A strong emphasis on three-dimensional sculptural form.

IA 50 Industrial Processes 3-6

A study of selected processes utilized by Industry in the processing, fabrication or modification of materials and their properties to provide useful components or finished products required by our modern society, with opportunity for in-depth investigation of one or more of these processes.

AI 54 Introduction to Digital Processors 3-6

Fundamentals of digital processing and digital systems. Emphasis will be on "hardware" so that students will be able to construct simple special purpose digital processors. Prerequisite: IA 34 or permission of instructor.

IA 60 Problems in Mechanical Maintenance 3-6

A course designed to investigate problems, and possible solutions, encountered in the maintenance of mechanical equipment, with opportunity to engage in meaningful experiences involving machinery or components. Examples of topical coverage may include lubrication, adjusting bearing installation, replacement of parts, color and dynamics, among others.

IA 70 Foundations of Industrial Arts I 2-2

Educational theories, social and academic setting, and leaders of each period of Industrial Arts history from manual training to the present.

IA 71 Foundations of Industrial Arts II 3-4

Curriculum theories and their application to the structure and organization of Industrial Arts in general education.

IA 80 Principles and Practices in Industrial Arts 3-3

Principles underlying methods of planning and guiding learning activities in Industrial Arts teaching.

IA 85 Student Teaching in Industrial Arts 10-20

Each student is responsible for teaching classes either in the campus junior high school or public school shops under supervision.

IA 87 Seminar in Industrial Arts 2-2

Principles and practices of shop administration, including shop planning finances, equipment, storage, maintenance, law.

IA 90-97 Independent Study in Various Shops 1-3 hours credit

Open to juniors and seniors with approval of instructor and departmental chairman.

INSTRUCTIONAL MEDIA**IM20 Theory and Practice of Media 3-4**

The course investigates three major applications of media: 1. The Aesthetic; 2. The Instructional/Training (or alternatively, the Public Relations application); and 3. Communications Theory. Students will work in group situations and apply various theories of recognized leaders to the design and development of mediated programs. Prerequisite: IM 24 or permission of Instructor.

IM 24 Design, Preparation, and Production of Instructional Materials 3-4

A course designed to give students practical experience with communication and graphic design in the preparation, production, and evaluation of graphic, photographic, audio, and video instructional materials. Prerequisite: IM 20.

IM 30 Introduction to Instructional Television 3-4

Introduction to Instructional Television is designed to provide the participant with a basic understanding of the uses of television in an instructional capacity. Experience in the preparation, production and evaluation of instructional television programs is included. Studio and portable equipment operation is integral to the course.

MATHEMATICS**MA 01, 02 College Mathematics I and II 3-3 each**

Topics in this two-semester course are selected from Algebra, Geometry, Probability and Statistics.

MA 12 Functions 3-3

Topics include the real numbers, equations and inequalities, elements of two-dimensional analytic geometry and polynomial, trigonometric, exponential and logarithmic functions.

MA 20 Informal Geometry 3-3

Congruence, measurement, parallelism, similarity, mathematical models for space, non-metric geometry, incidence geometry, convexity, distance and the ruler postulate.

MA 21 Analytic Geometry 3-3

Cartesian and Polar Coordinate Systems, Conics. Introduction to vectors, vector spaces and transformation of coordinates, matrices and determinants.

MA 23 Calculus I 3-3

Differential calculus including necessary elements of analytic geometry with emphasis on a rigorous approach to the derivative.

MA 24 Calculus II 3-3

Integral calculus including techniques and applications of integration of algebraic and non-algebraic functions.

MA 25 Abstract Algebra I 3-3

The basic concepts of algebra such as groups, normal subgroups, rings, ideals, fields, and homomorphism.

MA 26 Linear Algebra 3-3

Vector space properties are applied to the study of systems of linear equation, linear transformations, matrix algebra, and analytic geometry.

MA 30 Geometry I 3-3

Elementary geometry is studied from a point-set viewpoint. The foundations of Euclidean and non-Euclidean geometry are emphasized.

MA 31 Number theory 3-3

Divisibility, congruence, and other properties of integers from an historical as well as a modern approach.

MA 32 History of Mathematics 3-3

The development of mathematical ideas and methods from ancient to modern times, and their relevance for other fields of knowledge.

MA 33 Calculus III 3-3

A continuation of MA 24, including the study of conic sections by polar coordinates, and topic selected from hyperbolic functions.

MA 34 Calculus IV 3-3

Curves and functions of several variables. The theory of curves, partial derivatives, the chain rule and applications.

MA 36 Introduction to Mathematical Logic 3-3

Proof and truth in formal systems. Sentential logic and quantification. Set theory, proof theory, mode theory, recursive function theory.

MA 37 Probability and Statistics I 3-3

Counting methods, independence of events, and conditional probability introduce basic concepts of probability. Emphasis on discrete random variables and probability distributions.

MA 40 Geometry II 3-3

Synthetic methods are used to introduce the fundamentals of projective geometry. Analytic methods are used to develop this study. Prerequisite: MA 30.

MA 41 Topology 3-3

Point sets, metric spaces, topological spaces, connectedness, compactness, networks and maps, transformations, and selected problems.

MA 42 Elementary Differential Equations 3-3

Ordinary differential equations of the first order and degree including linear equations. Linear equations of the second order.

MA 43 Advanced Multivariate Calculus 3-3

Vector algebra, differential and integral vector calculus, Fourier series, and boundary value problems are topics included.

MA 44 Real Variable Theory 3-3

Topics include real numbers, metric spaces, Euclidean spaces, continuity, differentiation, Riemann integration and series.

MA 47 Probability and Statistics II 3-3

From discrete to continuous random variables. The binomial, poisson, and normal distributions, estimation of hypothesis and sampling theory. Prerequisite: MA 24 and MA 37.

MA 48 Abstract Algebra II 3-3

Sequential to Math 25. Groups, rings, fields, and vector spaces are studied in depth, leading to Galois theory.

MA 81 Methods and Materials in Secondary Mathematics I 2-2

Curriculum and pedagogy of secondary school mathematics with a practicum of preprofessional experiences. Prerequisite: IM 24.

MA 82 Methods and Materials in Secondary Mathematics II 1-1

Continuation of MA 81, taken concurrently with student teaching.

MA 83 Mathematical Concepts 3-3

Topics from arithmetic, algebra, and geometry of modern elementary school mathematics programs with attention to the structural and discovery approach.

MA 90 Independent Study 3 hours credit

Prerequisite: Permission of Department.

MEDICAL TECHNOLOGY**MT 10 Introduction to Medical Technology 1 credit**

A survey of the role of the medical technologist as a member of a health team—including techniques and procedures utilized by technologists and visitations to clinical facilities.

MT 40 Clinical Hematology 8 credits

Theory and practice of enumeration of blood cells and evaluation of stained blood smears.

MT 42 Clinical Chemistry 8 credits

Chemical analysis of body fluids and significance of their variation in disease.

MT 44 Clinical Microbiology 8 credits

Methods of isolation and identification of disease causing organisms in the fields of bacteriology, parasitology, mycology and virology.

MT 46 Immunohematology 8 credits

The determination of human blood-group factors and the evaluation of immunological reaction of serum as well as the factors involved in serology and coagulation.

MUSIC**MU 10 Art of Music I 3-3**

Music as aesthetic experience. Representative styles and categories from the Middle Ages to the present.

MU 20 Art of Music II 3-3

Music's reflection of the values and ideals of societies past and present. Interrelationships between the fine arts.

MU 22 Applied Music 1-2

Techniques and skills for prospective teachers of elementary and special classes. Students who can pass an equivalency examination are exempted.

MU 31 Symphony 3-3

Structural and stylistic characteristics of the symphony from the 18th century to the present.

MU 32 Opera 3-3

Several works from the standard operatic repertoire. Some significant trends in modern opera.

MU 33 Chamber Music 3-3

The idioms and aesthetic notions of the present century, together with their relationship to the past.

MU 34 Twentieth-Century Music 3-3

The idioms and aesthetic notions of the present century, together with their relationship to the past.

MU 35 American Music 3-3

American music from colonial times, with some emphasis upon "popular" and "Art" music of the present century in the U.S.

MU 40 Choral Arts 1-2

Singing choral music past and present, including dramatic music. No more than 3 semester hours applicable toward graduation. Available for audit. (See MU 41).

MU 41 Instrumental Arts 1-2

Small and large ensemble playing of representative works for instruments. No more than 3 semester hours of MU 41 or any combination of MU 41 and MU 40 applicable toward graduation. Available for audit.

MU 42 Class Piano 1-2

Practical keyboard usages in classroom work; accompaniment, simple transposition, harmonization of melodies at the keyboard.

MU 43 Class Voice 1-2

Principles of voice production. Breath control, phrasing, resonance, diction.

MU 44 Song 3-3

Popular, folk, and art songs of many nations.

MU 45 Harmony 3-3

Harmonizations of simple melodies. Principles of modulation and key relationships.

MU 80 Music in Elementary Education 2-4

The objectives and techniques of teaching music in the first six grades. Prerequisite: MU 22.

MU 82 Music in Special Education 2-4

Objectives and techniques of teaching music in special classes. Prerequisite: MU 22.

MU 83 Workshop in Elementary Music Education 2-4

Modern approaches to professional music education in the elementary school. Primarily for elementary music teaching specialists.

MU 90 Independent Study in Music 3 credits**NURSING****NS 10 Introduction to Nursing I 1-1**

Orientation to the Health Care system and to Nursing as a Profession. Development of a beginning concept of nursing.

NS 12 Introduction to Nursing II 1-1

Understanding of forces, past and present, effecting Nursing and Nursing education.

NS 20 Foundations of Nursing I 4-7

To develop the broad concepts of patient care. Basic nursing skills applicable to all nursing situations. Pre-requisites: BI 12, 13 or CH 13, 14 or their equivalent.

NS 21 Foundations of Nursing II 4-7

Planned clinical experience. Prerequisite: NS 20

NS 23 Nutrition 3-3

Basic nutrients essential to health; principles of dietary modifications in the treatment of disease.

NS 24 Foundations of Interpersonal Relationships 2-2

Through group process the student becomes aware of factors influencing interpersonal relationships.

NS 25 Foundations of Professional Relationships II 1-1

Continuation of NS 24.

NS 26 Introduction to Pharmacology 2-2

Fundamental principles of actions of classes of drugs are discussed in relation to their use in therapy and to nursing functions.

NS 30 Medical-Surgical Nursing 12-24

Further development of application of concepts of nursing through identification of health needs of the adult and his family. Prerequisites: BI 12, 13, 27, CH 13, 14 or their equivalent.

NS 31 Maternal and Child Health Nursing 12-24

Physiological and psychological nursing needs of families during child bearing and child-rearing years. Prerequisites: BI 12, 13, 27, CH 13, 14, BS 23 or their equivalents. Not required of students who take NS 35 and NS 36.

NS 32 Medical-Surgical Nursing 4-16

Laboratory in above. Open to R.N. students only. Prerequisite or concurrent: NS 22

NS 34 Principles of Management 2-2

Elements and principles applicable to management and beginning leadership positions. Emphasis on human relations approach.

NS 35 The Nursing Process I 6-15

Continuation of NS 35.

NS 40 Advanced Medical-Surgical Nursing 9-18

Analysis of nursing problems. The major causes of illness are the frame of reference.

NS 41 Community Nursing 6-12

Family nursing care based on nursing and public health theory. Clinical experiences in community agencies.

NS 42 Nursing Seminar 2-2

Current trends and problems. The nurse as both an individual and a group and organization participant.

NS 43 Psychiatric-Mental Health Nursing 6-12

Nursing care based on principles of preventive psychiatry. Clinical experiences in the psychiatric hospital and community agencies.

PHILOSOPHY

PL 10 Introduction to Philosophy 3-3

An introduction to the problems, methods, and goals of classical and contemporary Western Philosophy. Emphasis is placed upon how these differ from and relate to other inquiries.

PL 20 Ancient Philosophy 3-3

A study of the beginnings of Western Philosophy, including the Pre-Socratics, Plato, Aristotle, and several other figures of the period.

PL 21 Medieval Philosophy 3-3

Includes St. Augustine, Boethius, Albertus Magnus, Avicenna, Averroes, Maimonides, and St. Thomas, and their influence upon subsequent philosophy.

PL 22 Modern Philosophy 3-3

Trends of modern thought since the Renaissance, including Descartes, Locke, Spinoza, Leibniz, Hume, Kant, and Hegel.

PL 23 Contemporary Philosophy 3-3

An examination of some current trends and issues in contemporary American and European philosophy.

PL 30 Philosophy of Education 3-3

This course seeks to trace the origin and development of major educational theories and their contemporary implications.

PL 31 Logic: Traditional and Contemporary 3-3

Logic and language; informal fallacies; Aristotelian and symbolic deduction; induction and scientific method; the nature of reduction.

PL 32 Theories of Knowledge 3-3

The problem and method of human knowledge. Theories presented in the light of Idealism, Realism, Pragmatism, and Existentialism.

PL 33 Metaphysics 3-3

Introduction to the origin and development of metaphysical problems in Western Philosophy.

PL 34 Philosophy of Man 3-3

The individual, social, and cosmic dimensions of man as seen from the perspectives of both philosophy and behavioral science.

PL 35 Contemporary Ethical Theories 3-3

Analysis of moral experience; survey, evaluation, and synthesis of major ethical theories; ethics and behavioral science.

PL 36 Problems of Moral Decision 3-3

Application of ethical theory to some of the major problems of contemporary man and society.

PL 40 Existentialism 3-3

Origin of contemporary Existentialism; its leading ideas as seen in writings of such philosophers as Kierkegaard, Jaspers, Marcel, Sartre, and Camus.

PL 41 Philosophy of Art 3-3

An examination of the interpretations of esthetic experience presented by such thinkers as Aristotle, Tolstoy, Shiller, Bergson, Spengler, and Dewey.

PL 42 Political and Social Philosophy 3-3

The various political and social ideas beginning with Plato and continuing to Marx.

PL 43 Philosophy of Science 3-3

This course involves an analysis of the methods and goals of the physical sciences, how they differ from the social sciences, and the philosophic problems encountered in scientific pursuits.

PL 44 Philosophy of Language 3-3

This course deals with the role played by language in human knowledge and the increased emphasis on the analysis of language in recent philosophy.

PL 45 Philosophy of Love 3-3

An analysis of the concept of "love" as employed in the social and moral philosophies of various classical and contemporary thinkers.

PL 46 Philosophy of Religion 3-3

The God-problem and religious experience as seen in the classical philosophers and in the philosophies of existentialism and pragmatism.

PL 47 Philosophy of Thanatology 3-3

An examination of the nature of death and its relation to the concepts of self, morality, soul, etc., in Western thought.

PL 50 Plato 3-3

Plato's theory of ideas, theory of knowledge, ethical and political views, doctrine of fine arts.

PL 51 Aristotle 3-3

A study of Aristotle's philosophy as seen in his *Metaphysics*, *Politics*, and *Nicomachean Ethics*.

PL 52 Philosophy in an Age of Technology 3-3

This course explores a broad range of issues including: the nature of technology and its impact on society; the social and moral responsibilities of scientists and technologists; and the problems encountered in policy-designing for mankind.

PL 53 Myth and Symbolism in Human Thought 3-3

An introduction to the historical, logical, and esthetic roles played by myth and symbol in ancient, modern, and contemporary thought.

PL 54 Marxism 3-3

A study of Marx's thought; its origins, development, and contemporary applications.

PL 55 Early American Philosophy 3-3

A study of American thought from the Colonial Period through the 19th century.

PL 56 Contemporary American Philosophy 3-3

An examination of the current trends and issues in American thought.

PL 57 American Pragmatism 3-3

An analysis of the thought of Peirce, James, and Dewey.

PL 58 Philosophical Themes in Literature 3-3

A study of the philosophic positions, both implicit and explicit, found in selected works of classical and contemporary literature.

PL 59 Personalism and Contemporary Culture 3-3

Personalism in its European and American manifestations; its relation to other contemporary currents of philosophy; the prospect for social, political, and ethical applications.

PL 60 Seminar/Special Topics

PHYSICAL EDUCATION**PE 10 Health and Fitness 3-3**

Body structure, physical fitness, motor learning, motor performance in terms of their relationship to man's physical well-being.

PE 12 First Aid and Safety 1-2

A behaviorally oriented course structured for those responsible for the safety and protection of others. Satisfactory completion, with official Red Cross certification, is required for all students in all curricula except Nursing, Medical Technology and all Bachelor of Arts programs. Education majors must have completed a First Aid course at the college or elsewhere prior to student teaching.

PE 20-60 Activity Courses 2-1

Activities are taught on a half-semester basis. Each half semester carries 2 clock hours and 1/2 credit.

PE 20	Handball	PE 42	Track and Field
PE 21	Physical Conditioning	PE 43	Gymnastics
PE 22	Weight Training	PE 44	Advanced Gymnastics
PE 23	Wrestling	PE 45	Slimnastics
PE 24	Squash	PE 46	Rhythmics
PE 25	Soccer	PE 47	Field Hockey
PE 26	Lacrosse	PE 48	Advanced Field Hockey
PE 27	Games	PE 49	Aerobics
PE 28	Basketball	PE 50	Square Dancing
PE 29	Advanced Basketball	PE 51	Perceptual Motor Activities
PE 30	Volleyball	PE 52	Techniques of Coaching
PE 31	Softball	PE 53	Dance
PE 32	Swimming	PE 54	Advanced Volleyball
PE 33	Advanced Swimming	PE 55	Recreational Sports I
PE 34	Tennis	PE 56	Recreational Sports II
PE 35	Advanced Tennis	PE 57	Badminton and Table Tennis
PE 36	Archery	PE 58	Modern Dance
PE 37	Badminton	PE 59	Canoeing
PE 38	Fencing	PE 60	Sailing
PE 39	Golf	PE 61	Mountain Leadership
PE 40	Judo and Self-Defense	PE 62	Backpacking
PE 41	Bowling	PE 63	Skiing

First Aid 0-2

The official Red Cross Standard course is required for students in all curricula except Nursing, Medical Technology and all Bachelor of Arts programs.

PE 80 Physical Education in the Elementary School 1-2

Theory and practice course designed to guide the classroom teacher in organizing a comprehensive program of physical education activities.

PE 82 Physical Education for Secondary Schools 3-3

Pertinent background material for organizing and conducting an integrated activity program for junior and senior high school boys.

PE 83 Athletic Training 3-3

The principles and practices of the prevention and care of athletic injuries will be offered to the prospective teacher and /or coach.

PE 84 Officiating Basketball and Volleyball 3-3

The philosophy and techniques of officiating basketball and volleyball for women. DGWS rules are used for both sports and an opportunity is presented to take the written and practical national examination to obtain a rating in either or both sports.

PE 85 Fundamentals of Coaching 3-3

For the prospective teacher-coach. An analysis of the principles and practices of coaching in various sports.

PE 88 Recreational Leadership 3-3

The organization and administration of recreational activities in reference to the development of principles and practices in both school and community programs. Leadership experience with school and community programs.

PE 90 Independent Study 3

Prerequisite is permission of departmental members.

PHYSICS**PH 10 Elementary Physics for Non-Scientists 3-4**

Non-laboratory course for non-science majors. Mechanics, electricity, atomic theory of matter; Heisenberg uncertainty relations; Bohr's principles. Influence of the new developments on man's understanding of laws of nature in general, and evaluation of his own position, in particular.

PH 11 Introductory Physics I 3-4

Study of motion, Newtonian mechanics, wave motion, light, electromagnetic theory.

PH 12 Introductory Physics II 3-4

Continuation of PH 11. Relativity, quantum theory, nuclear and atomic physics.

PH 13 General Physics I 4-5

Newtonian mechanics: motion, work, energy, momentum, simple harmonic motion; heat, kinetic theory.

PH 14 General Physics II 4-5

Electrostatics, magnetism, electric circuits; wave motion; geometric and physical optics. Prerequisite: PH 13.

PH 15 Modern Physics 3-3

Particles in electric and magnetic fields, Bohr atom, quantum theory, special relativity, matter-wave theory, radio activity. Prerequisite: PH 14.

PH 21 Mathematical Methods in Physics I 3-3

Analytical geometry: rectangular Cartesian coordinates, distance formula, equation of a line, conic sections and their equations in polar and tangential polar coordinates; applications to mechanics, Kepler's laws of planetary motion; trigonometry definitions, identities, solutions of trigonometric equations, solutions of a triangle.

PH 22 Mathematical Methods in Physics II 3-3

Algebraic equations; graphs of polynomials, rational functions; binomial theorem; logarithmic, exponential functions; construction of functions from empirical data; applications to mechanics, heat, etc.; vectors, complex numbers.

PH 23 Mathematical Methods in Physics III 3-3

Integration—definition, indefinite integrals, integration by parts, substitution; integration of trigonometric functions, partial fractions, application; differential equations—first and second orders, applications to mechanics, electricity, etc.

PH 24 Electronic Physics I 4-5

A.C. and D.C. circuits; diodes and power supplies; transistor hybrid parameters; common emitter amplifier, gain, impedance.

PH 25 Electronic Physics II 4-5

Multi-stage amplifiers; common collector and common base amplifiers; amplifier distortion, gain and bandwidth; sine wave oscillators and multi vibrators.

PH 26 Electronic Physics III—Digital Electronics 3-4

Fundamental theory and application of digital circuits; diode and transistor gates, flip flops, analysis and synthesis of logic circuits using integrated circuits. Prerequisite: Electronic Physics II, or a course in basic electronics.

PH 31 Intermediate Mechanics 3-3

Newton's Laws of Motion, conservation of energy, spherically symmetric force fields, gravitational fields and planetary orbits. Lagrange's and Hamilton's.

PH 32 Vibrations and Waves 3-4

Linear Oscillator, free and forced oscillations, damping, vibrating string, traveling and standing waves, Fourier analysis, introduction to wave optics, lab work in physical optics. Prerequisite: PH 31.

PH 33 Quantum Mechanics 3-3

Old Quantum Theory, Schrodinger equation, physical interpretation of wave function, energy levels, harmonic oscillator, hydrogen atom, perturbation theory, helium atom. Prerequisite: PH 15 and PH 22 or MA 33.

PH 34 Seminar in Physics 1-1

Oral and written presentation of topics on recent developments in the field of physics. Required of all physics majors. Prerequisite: Junior standing in Physics.

PH 35 Electricity and Magnetism 3-3

After a preliminary introduction to vector algebra, electrostatic as well as magnetostatic fields in vacuum and material media are discussed. Maxwell's equations and propagation of electromagnetic waves are considered.

PH 41 Physics for Secondary Teachers 3-4

Concepts and laboratory work in physics specifically oriented to programs currently being offered or being developed in secondary schools.

PH 42 Statistical Mechanics and Thermodynamics 3-3

Laws of thermodynamics; entropy; Carnot cycle; kinetic theory of gases; Bose and Fermi gases; low temperature physics. Prerequisite: PH 31.

PH 43 Atomic and Nuclear Physics 3-3

Electronic configuration of the atoms; Pauli principle; shell model of nucleus; radioactivity; elementary particles. Prerequisite: PH 33.

PH 44 Solid State Physics 3-4

Short review of quantum mechanics, crystal structure, magnetism, semiconductor theory, specific heat of solids. Prerequisite: PH 25.

PH 45 Advanced Laboratory 3-5

Selected experiments from different areas of physics; required of physics majors on B.A. program. Prerequisite: PH 25.

PH 88 Physics Methods 3-3

Methods of teaching physical sciences at the secondary level. Includes a survey of modern secondary science curriculum. Prerequisite: IM 24.

PH 90 Independent Study 3 credits

Laboratory research under the guidance of the physics staff. Prerequisite: permission of the instructor.

POLITICAL SCIENCE

Courses in political science are intended for any student with a general interest in politics and government. They are also designed to provide a proper background for students interested in pursuing graduate study or a career in law, public administration, or government and political science. It is recommended that these students take six hours of Modern American Government and six hours of electives.

PS 10 Modern American Government: State and Urban Government 3-3

Focus upon current issues in urban and state government and politics and attempts to evaluate proposed solutions.

PS 20 Modern American Government: The Federal Government 3-3

Growth and complexity of the functions performed by the branches of the national government: Congress, President, and Supreme Court. Examination of the crucial role of the President today in national and world affairs. Attention given to current political campaigns.

N.B. PS 10 and 20 or the consent of the instructor are required for all other courses in Political Science.

PS 22 Constitutional Law and the Supreme Court 3-3

Treats the Constitution as a living document, tracing its development through historic Supreme Court decisions.

PS 30 International Law and Organization 3-3

A study of the pioneering political institutions which have been fashioned to cope with the issues of world interdependence.

PS 32 Contemporary International Relations 3-3

A study of critical problems confronting the present international system. The "Cold War," armed conflict, internal violence as well as prospects for the resolution of conflict are explored. Simulational gaming exercises and class discussions supplement readings.

PS 35 Comparative Political Systems 3-3

A comparative analysis of modern national governments such as the Soviet Union, France, Germany, and Great Britain. Importance of the world's political heritage and the implications for the emerging nations of liberal democracy, communism, and dictatorship.

PS 36 Civil Rights and Civil Liberties in the United States 3-3

Conceptual perspectives of civil rights and civil liberties, freedom of expression and the problem of loyalty and security, equality, the civil rights movement, criminal justice procedures, and the politics of civil rights and liberties.

PS 40 Principles of Administration 3-3

An introduction to administration is presented. Leadership, authority, change and communications are among the topics discussed. The course includes case studies and problem-solving from such fields as allied health, business, law-enforcement and government service.

PS 90 Independent Study in Political Science

Open to students who have the permission of the supervising instructor and the department. Course of study, meetings, and credit by arrangement.

SCIENCE**SC 10, 11 Physical Science I and II 3-4 each**

For the non-scientist. Emphasis is upon the building of conceptual models, solving techniques, and the processes of science.

SC 12 Astronomy 3-4

A study of planetary motion, the sun, stars, and galaxies. An observing program. A background of algebra is assumed.

SC 13 Earth, Sea and Air 3-4

Selected topics from the earth sciences.

SC 15 Environmental Physical Science 3-4

The study of (1) the environment, (2) the effects of pollution on the environment, ecosystems and natural balance and (3) relevant background material in physical science as needed. Prerequisite: Physical Sci. I, Earth, Sea and Air or equivalent.

SC 81 Science in Elementary Education 3-4

Content, methods and resources suggested by curriculum groups are examined and experiences developed that exemplify current thinking in science education.

SPECIAL EDUCATION**SE 21-22 Nature and Needs of Exceptional Children I and II 3-3 each**

Etiology, classification, problems of children who have physical disability, mental retardation, emotional or social difficulties, giftedness. Clinical observations and consultations.

SE 24 Home Arts 2-4

Food, clothing and other home-arts areas for those who will teach and work with the exceptional child.

SE 41 Severely and Profoundly Handicapped 3-3

Emphasis on special content, methodology, and development of community programs.

SE 50 Early Childhood Experiences for Exceptional Children 3-3

Adjustment, communication, socialization, and academic readiness.

SE 51 Identification and Diagnosis of Learning Disabilities 3-3

Theories of learning and procedures for identifying and diagnosing children with learning disabilities.

SE 61 Industrial Skills and Analysis of Job Areas 3-3

A laboratory course providing technical knowledge and instruction of industrial skills appropriate for the exceptional child.

SE 62 Nature and Needs of the Multiple-Handicapped 3-3

Emphasis on the commonalities, services and needs of the multiple-handicapped.

SE 63 Problems in Language Arts for Special Education 3-3

Students identify, develop, use resources related to classroom problems in language areas. Stages of development and deviations of exceptional child.

SE 64 Seminar in Special Education 3-3

Educational research and study of problems in Special Education. Students appraise and apply resources in development of their research problem.

SE 65 Secondary Education Programs for the Exceptional Youth 3-3

Lectures, discussions, observations and readings for an understanding of how the secondary school can serve the exceptional youth.

SE 66 Language Development 3-3

The process and analysis of language acquisition of infants and the pre-school child, the neurological and social bases of oral language and the theory of psycholinguistics.

SE 67 Program Development for Children with Learning Disabilities 3-3

Interpretation, identification and organization of sequential programs for children with learning disabilities.

SE 69 Community Resources for the Exceptional Child 3-3

Identification of agencies, practices, and personnel, development of models, simulation of roles, and production of a guide.

SE 70 Integrated Professional Program

The integrated program in the Department of Special Education is an effort to move the preparation of special education teachers from a college-based program to educational settings in the community. In this setting students will have constant interaction among academic, observational, and participatory experiences. When a concept or technique is introduced academically, the student will have the opportunity to observe a demonstration and to engage in practice where he/she can receive guidance, immediate feedback, and further demonstrations. In addition, he will have the opportunity to raise questions

based on his academic and participatory experiences and will have the opportunity to share ideas, problems, and learnings with other professionals. This program is an attempt to prepare teachers to best meet the educational/social needs of non-integrated and integrated children who manifest learning/behavior problems.

The program can be viewed in terms of courses and credits. The learnings will go on in activities planned and will not necessarily mean that formal lecture courses are being given.

SE 86 Student Teaching 12 credits

Each student is required to have a full semester of teaching classes of children with special needs. Students seeking certification at the elementary level will student teach in an elementary school. Students seeking certification at the secondary level will student teach in a secondary school.

The Professional Education Program

Nature and Needs of Exceptional Children (sophomore year—1st semester)	6 Credits (2 semester course)
---	----------------------------------

Integrated Program	15 credits
--------------------	------------

Curriculum in Special Education
Methods in Special Education
Identification and Diagnosis of Learning
Disabilities Reading in Special Educxction
Communication Arts

Student Teaching Criteria for Admission:	12 credits
---	------------

By the end of the sophomore year, students will have completed some of the general educational requirements of the college. Also included in the completed requirements would be the following professional courses:

Nature and Needs of Exceptional Children—Special Education Dept.
General Psychology—Behavioral Science Dept.
Child Psychology—Behavioral Science Dept.
Theories of Learning (1974-1975)—Behavioral Science Dept.
Tests and Measurements—Behavioral Science Dept.
Home Arts—Special Education Dept.
Industrial Arts—Industrial Arts Dept.

If these requirements have been met, the student will enter the professional block first semester, Junior Year. General Education requirements can be completed during first and/or second semester Senior Year.

Transfer students who have not completed the professional course requirements by the end of their sophomore year will enter the integrated program first semester Senior Year and will do student teaching second semester, Senior Year.

SE 90 Independent Study 3 credits

Review, development and synthesizing of a problem in Special Education. Open to juniors and seniors with permission of instructor.

SPEECH**SH 01 Speech Improvement 0-1**

Remedial course. Students are assigned after diagnosis, and recommendations of need for speech improvement. Individual and group therapy.

SH 11 Argumentation and Debate 3-3

The argumentative process in a democracy. Debate, reasoning, research.

SH 12 Intercollegiate Debate 1 credit per semester

Two such credits may satisfy speech requirement; may repeat for credit; may be pursued as non-credit extracurricular activity.

SH 13 Persuasion 2-3

Theory and Practice. Analysis of historical and contemporary speeches. Prerequisite: SH 10.

SH 14 Basic Speech 3-3

Effective organization and delivery of speeches, oral interpretation of literature, techniques of intelligent criticism. Forums, panel discussions, parliamentary procedure. General Education requirement.

SH 15 Introduction to Communication 3-3

Studies man's capacity to relate to other humans and to his environment through conscious and "out-of-awareness" communication.

SH 16 Speech Theory and Analysis 3-3

A review of the major concepts of communication that have developed since the time of Aristotle. These concepts will be applied to a variety of well-known speeches.

SH 17 Broadcast Media: Theory and Practice 3-3

Students will produce media programs through the facilities of local stations

SH 20 Acting 3-2

Fundamentals of creative mime, improvisation, stage speech and movement. Reading and analysis of plays.

SH 25 Theater Production and Stagecraft 3-3

Laboratory situation. Project oriented. The student will take one selected play from initial sketches through to finished model and plans for production. Design, set building, costuming, lighting, and management are the chief elements. No prerequisite but permission of the instructor required.

SH 90 Independent Study 3-3

INDEX

Accreditation Inside Front Cover

Administration 5

Admissions 19

Advanced Standing 22

Art 51

Attendance 28

Behavioral Science

(Psychology) 52

(Human Services) 55

(Sociology) 55

Biology 56

Buildings 17

Calendar 2

Chemistry 58

College Description 19

College Level Examinations 20

Computer Center 19

Computer Science 60

Costs 23

Counseling Center 27

Course Numbering 51

Curriculum Outlines

Biology, B.A. 35

Biology, B.S. 35

Chemistry, B.A. 37

Chemistry, B.S. 36

Computer Science, B.S. 37

Early Childhood, B.S. 38

Elementary B.S. 38

Elementary Specializations 32

English, B.A. 39

English, B.S. 38

Geography, B.A. 40

Geography, B.S. 40

History, B.A. 41

History, B.S. 41

Human Services 42

Industrial Arts, B.S. 43

Mathematics, B.A. 44

Mathematics, B.S. 44

Med. Technology, B.S. 45

Nursing, B.S. 45

Physics, B.A. 47

Physics, B.S. 48

Psychology, B.A. or B.S. 49

Special Education 49

Sociology, B.A. or B.S. 50

Degree Programs 33

Early Childhood 63

Economics 61

Education 63

Education 63

English 65

Evening Undergraduate 34

Faculty 7

Foreign Languages 68

Financial Assistance 26

French 68

General Education 30

Geography 71

German 67

Goals and Objectives 17

Governance 18

Grading System 28

Graduate Studies 33

Graduation Requirements 27

Health Center 26

History 73

History Specialization, Elem. 33

Housing 23

Industrial Arts 76

Instructional Media 19, 79

Library 18

Mathematics 80

McKay Campus School 16

Medical Staff 26

Medical Technology 81

Music 82

Nursing 83

Parking Regulations 30

Philosophy 84

Physical Education 87

Physics 88

Placement 27

Political Science 90

Russian 70

Science 91

Spanish 70

Special Education 91

Speech 94

Student Teaching 28

Summer Session 34

Transfers 22

Trustees

Tuition 23

Veteran Education 25

Withdrawal From Class 29

Withdrawal From College 29

FITCHBURG STATE
COLLEGE/ARCHIVE
COLLECTION

NON-CIRCULATING



